REPORT RESUMES

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INDUSTRIAL TRAINING RESEARCH REGISTER.
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IN THIS CLASSIFIED REGISTER OF CURRENT AND RECENTLY COMPLETED STUDIES OF INDUSTRIAL TRAINING IN GREAT BRITAIN, INDIVIDUAL PROJECTS ARE ARRANGED BY THE ITEM NUMBER JUDGED MOST IMPORTANT, AND THE NUMBERS OF OTHER RELEVANT INDUSTRIAL RESEARCH PROJECTS ARE INSERTED AT THE END OF EACH SECTION TO PROVIDE CROSS REFERENCES. DESCRIPTIONS INCLUDE THE TITLE AND WHEREVER POSSIBLE, A SHORT SUMMARY OF OBJECTIVES AND PROCEDURES, THE TIME AND PLACE OF THE RESEARCH, THE PRINCIPAL RESEARCHERS, AND THE SPONSORING ORGANIZATION. NATIONAL ASPECTS (GOVERNMENT REPORTS, MANPOWER POLICY AND PLANNING, LEGISLATION), COMPONENTS OF THE EDUCATIONAL SYSTEM, WORK ENVIRONMENTS (INCLUDING THE EFFECTS OF ORGANIZATIONAL CLIMATE AND AUTOMATION), TRAINING SPECIALISTS AND THEIR ACTIVITIES, MEANS OF IDENTIFYING TRAINING NEEDS, TYPES OF TRAINEES AND THE SELECTION AND RECRUITMENT OF TRAINEES, ADMINISTRATIVE ASPECTS (TYPES OF TRAINING, OBJECTIVES, FACILITIES, SCHEDULING SUBJECT CONTENT), TRAINING METHODS AND LEARNING AIDS, AND EVALUATION TECHNIQUES ARE THE BROAD CATEGORIES REPRESENTED. (ALSO INCLUDED ARE A SUBJECT INDEX AND THE ADDRESSES OF RESEARCH ORGANIZATIONS AND INDUSTRIAL TRAINING BOARDS.) (LY)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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INDUSTRIAL TRAINING RESEARCH REGISTER

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Training Department, TD 2,
32/33 St. James's Square,
LONDON, S.W.1.

Tel No. WHItehall 6200, Extn 186

March, 1967

AC001 719

Industrial Training Research Register

Introduction

1 One of the main objectives of the Industrial Training Act is to secure an improvement in the quality and efficiency of industrial training. An obvious and important way of assisting this improvement is to encourage research into training problems and into the development of new and improved methods and techniques. To be effective however, such research must be publicised so that relevant findings may be rapidly applied.

2 This Register lists and classifies current and recently completed projects and shows the range and extent of research in the training field. It is designed to help the training specialist identify research within his spheres of interest and to indicate to research workers and others gaps in existing research coverage and areas of possible overlap.

Provision of Grant-Aid

3 The Ministry of Labour and the Industrial Training Boards have authority to grant-aid projects of an applied nature into problems connected with industrial training. A number of projects included in the register have been financed in this way. Ministry of Labour grants* may be made available when an approved project is of a general nature, or appropriate to an area of industry not yet covered by a Board. Otherwise the Training Board of the industry concerned (see Appendix 1 for addresses of the Industrial Training Boards) is the appropriate source for grant-aid. The Social Science Research Council/ remains responsible for grant aiding fundamental research projects into the nature and acquisition of skills.

4 Before making a research grant, the Ministry of Labour normally seeks the advice of the Research Committee of the Central Training Council. The Committee's terms of reference include the consideration of "the needs of research into matters relating to training for employment in industry and the means by which these needs can be met".

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* An explanatory memorandum and application forms may be obtained from The Secretary, CTC Research Committee, 32 St James's Square, S.W.1 (WHItehall 6200)

/ Social Science Research Council, State House, High Holborn, London, W.C.1 (HOLborn 6491)

5 The inclusion of a project on the register does not imply that it would necessarily qualify for financial assistance from the Ministry, the Social Science Research Council or from an Industrial Training Board. These organisations have their own criteria for sponsoring new research. Similarly, some of the projects listed in this Register may not come within a strict definition of research but have been included because they are relevant to the work of the training specialist and appear to merit wider publicity.

Sources of Information

6 Projects listed on the register have become known to us through a variety of sources and we are grateful for the interest research workers have shown in supplying the information necessary for a register entry. Because of the upsurge of activity in industrial training we are now learning of many projects at an early stage, but to keep our records up to date we should of course appreciate details of other new projects and information on alterations and extensions to existing projects.

7 In conjunction with the Social Science Research Council, the Office of Scientific and Technical Information (Department of Education and Science) is producing an annual register of current social science research in Britain. This replaces the "Register of Research in the Human Sciences" produced in recent years by Warren Spring Laboratory. The new register will be a companion volume to OSTI's other registers of research in the physical sciences (vol 1) and the biological sciences (vol 2) entitled "Scientific Research in British Universities and Colleges". The social science volume will appear as vol 3, "Social Sciences, Including Government Departments and other Institutions". The information OSTI has collected for their volume has been made available to us for the preparation of this Register.

8 For a publication of this nature to be of any continuing value it will need to be up-dated and re-issued periodically. In the intervals between publication our own records will be revised as new projects come to our attention and we shall be pleased to answer queries on such developments. However, requests for detailed information on particular projects listed in this Register should be addressed to the investigator or institution concerned and not to the Ministry of Labour.

Lay-out

9 The Register is arranged in a class order according to a classification system designed for the storage and retrieval of training information and developed in the Ministry from an analysis of the training function. This classification is the end product of a series of consultations with research workers and training specialists and has received a wide measure of support. In its complete form it is based on ten main schedules. These are divided into groups which are in turn sub-divided into item numbers. The main schedules of the classification are as follows:-

0 - General
1 - National Considerations
2 - The Education System
3 - The Working Organisation
4 - Training Specialists
5 - Identification of Training Needs
6 - The Trainee
7 - Training Administration
8 - Methods and Aids
9 - Assessment of Effectiveness

Note. For the purposes of this Register Schedule '0 - General' which is concerned with the form and origins of publications, research methodology, information techniques etc. has been omitted.

10 Individual projects have each been arranged in classification order according to the item number regarded as most important. Cross references have been made by inserting at the end of each section the classification numbers of other relevant projects to which reference should also be made. Each project is laid out in a uniform way; its title followed by, whenever possible, (a) a short summary of its objectives and procedures, (b) the location of the research and the principal research worker(s) (c) the period of the research and (d) the sponsoring organisation where this is known to differ from (a). To provide for easy reference, full addresses of the institutions etc. undertaking the research (appendix 2) and an alphabetical subject index to the complete classification (appendix 3) are provided.

Linked Publications

11 Although considerable research in the field of training has been carried out in the last few years, it is doubtful whether the results of such research have been adequately disseminated. To remedy this and to help in the application of research findings in industry a series of Training Information Papers is being introduced. These will present research findings briefly and simply and in a way calculated to appeal to a wide readership. The Papers will be published by HMSO. A further project concerned with disseminating information is a Training Abstracts Service. This is designed to provide convenient summaries of books, articles, research reports and similar published material of direct interest to training specialists, institutions training training officers, Industrial Training Boards and any organisations which are in some way concerned with training. Information about the service may be obtained from the address below.

Research Overseas

12 This Register is restricted to work undertaken in this country but much of the research going on abroad is relevant to training here. CIRF Abstracts, produced by the International Vocational Training Information and Research Centre draw attention to important research findings in various countries and many of their abstracts will be reprinted in the Training Abstracts Service mentioned in para 11. Enquiries for the CIRF Abstracts may be addressed to the London Office of the International Labour Office, Sackville House, 40 Piccadilly, London W.1 or direct to CIRF Publications, International Labour Office, 1211 Geneva 22, Switzerland. The US Department of Labour (Office of Manpower, Automation and Training) produce a register of sponsored projects entitled "Manpower and Automation Research" which provides a useful insight into the work being undertaken in the United States. Enquiries for this publication should be addressed to The Director, Office of Manpower, Automation and Training, US Department of Labor, Washington, DC 20210.

13 Comments on this register, its arrangement, the classification adopted and suggestions for the inclusion of further projects will be welcomed.

Ministry of Labour,
Training Department (T D2),
32 St James's Square,
London, S.W.1.

NATIONAL CONSIDERATIONS

10 GENERAL

11 GOVERNMENT DEPARTMENTS; OFFICIAL REPORTS; WHITE PAPERS ETC.

110 Government Departments including inter-departmental Committees

The case for a positive government training policy

(a) To enquire into the economic problems and possibilities of a greater degree of government intervention in the labour market, with specific reference to industrial training;

(b) Liverpool University, School of Business Management; B. Foley.

(c) 1967.

See Appendix 2 for research projects undertaken by the Ministry of Defence.

12 MANPOWER

120 General

(1) Supply of Labour in the United Kingdom

(a) To analyse the determinants of short-run fluctuations in the aggregate supply of labour in the United Kingdom by sex and by region. Procedure is by multiple regression on quarterly data.

(b) Southampton University; K. Hilton.

(c) 1962-1967.

(2) National survey of health and development

(a) This continuing survey involves a longitudinal study of over 5,000 boys and girls born in the first week of March, 1946. The sample includes 350 at University, 200 at teacher training colleges and 125 other full-time students. Information during the school period was obtained from doctors, teachers, heads, mothers, children and from three test batteries and questionnaires. Post-school information has been obtained through student questionnaires and group interviews. A book on the secondary schooling phase is to be published during 1967 and another is planned on the sixth form and the transition to student life.

(b) London School of Economics; Dr. J. W. B. Douglas.

(c) 1946-1970.

(d) Medical Research Council.

(3) The use of qualified manpower in industry

(a) This study is concerned with the relationship between educational qualifications, on-the-job training and occupational structure in British industry, and with the connection between these and the economic performance of individual firms. One aim is to throw light on the factors affecting the requirements for people with different educational qualifications with the aim of improving existing methods of forecasting manpower requirements. The object of the main study is to examine the relationship between education and the production of goods and services in detailed industrial operations.

(b) London School of Economics; Professor C. A. Moser.

(c) 1st August, 1964 - 31st July, 1967.

(d) Social Science Research Council and Ford Foundation.

Related Projects 330(1); 350(2); 540(1).

121 Planning, forecasting, budgeting policy and techniques

(1) Social change, economic growth and planning in mid-Kent

(a) The investigation will cover the economic, social and political aspects of the expansion of the Ashford area of Kent. The aim is to study both the process of social change in the context of rapid urban expansion and the administrative, economic and political problems of initiating, planning and controlling such an expansion. Amongst other factors, an examination will be made of the occupational and industrial characteristics of the present labour force together with an evaluation of the expansion of employment opportunities in the light of plans for industrial expansion and the effect on the area of national economic plans and prospects.

(b) University of Kent at Canterbury, Centre for Research in the Social Sciences; Professor W. Hagenbuch.

(c) October, 1966 - October, 1969.

(d) Social Science Research Council.

(2) Manpower forecasting methods with particular reference to an analysis of their use in national economic and social policy.

(a) A systematic review of manpower forecasting methods at the national level, analysed according to different policy needs and criteria of reliability. This is based mainly on published studies so far, but some economic model building is expected later.

(b) London School of Economics; J. R. Crossley.

(c) 1967 continuing.

(3) Planning, recruitment and redeployment in the steel industry.

(b) British Iron and Steel Research Association; C. J. Purkiss.

(c) 1965 continuing.

(4) Co-ordination of technological change and manpower planning

(a) A study of experiences gained and procedures adopted by individual firms in integrating the programming of technological change with the planning of manpower adjustments so as to minimize the disruptive effects on present employees. The firms were selected from public and private sectors of the industry. The reports have been combined and edited by the OECD from the seven participating countries (including the United Kingdom).

(b) OECD (Manpower and Social Affairs Committee).

(c) 1963-1966.

(5) Manpower budget for the Humberside micro-region.

(a) This study represents the first stage of a project which should eventually yield a comprehensive manpower survey of the Humberside region. The initial work will provide basic data concerning population structure and trends at, and up to, the commencing date of the survey, including migration; and also a detailed analysis of the structure of the labour force in terms of its industrial distribution, age and sex structure, and skill composition. Projections of these data will then be made under various assumptions for the period up to 1981.

(b) Hull University; Professor J. S. G. Wilson, R. J. Nicholson.

(c) 1st October, 1966 - 31st September, 1967.

(d) Social Science Research Council.

122 Mobility of labour

(1) Social aspects of internal migration and labour mobility

(a) The investigation began by examining Census data on internal migration together with information concerning the South West region of England, provided by the Social Survey (Central Office of Information) and derived from their survey of labour mobility. Subsequently, a series of field surveys will be conducted, designed to ascertain the social factors which inhibit or encourage migration. The study will examine the relationship between migration and five main spheres of the informant's life experiences; job mobility, class position and social status mobility, marital status and household composition, housing conditions and neighbourhood and community relationships.

(b) Bath University of Technology; Professor S. T. Cotgrove.

(c) 1964 - 31st December, 1967.

(d) Social Science Research Council.

(2) Sociological study of labour mobility

(a) A study is planned of the sociological and economic factors which hinder or facilitate the effective movement of labour between contracting and expanding sections of the economy. movement of labour includes geographical movement and job changes between firms, industries or within firms and nationalised industries. On the sociological side, a statistical sample of 1,700 households will be made and this number of interviews held. A ten year mobility history will be made of people interviewed and their present attitude related to their mobility or immobility over the period of the past two years. The economic side of the survey will aim at giving a picture of movements within the geographic county and the labour catchment areas of large firms. It will consider how far economic development is held up by skill shortage and will consider the problem of labour retraining.

(b) Newport, Monmouthshire College of Technology; E. Lloyd.

(c) 1st May 1964 - 31st October, 1966.

(d) Social Science Research Council.

Related Projects 641.

123 Redundancy, redeployment

(1) Redundancy at a washing machine factory in Wales

(a) The object of the investigation is to explore the social and industrial effects of redundancy on some 800 persons laid off by the factory in 1965. Fields to be investigated include pre-redundancy job experience, experiences in finding new jobs after redundancy, financial and other adjustments to redundancy, attitudes to redundancy, etc. Data will be related to factors such as age, skill, length of service, etc. The case to be studied is unique in that a large scale reduction in manpower was obtained by calling for volunteers to leave the firm's employ in return for severence payments. The investigation should add to knowledge of the consequences of payroll reductions, regional patterns of labour mobility, the bearing of the local employment situation on the effects of redundancy and the effectiveness of labour market agencies in the redeployment of labour.

(b) Cardiff, Welsh College of Advanced Technology; T. Boyce.

(c) 1st July 1966 - 31st December, 1967.

(d) Social Science Research Council.

(2) Economics of industrial redundancy

(b) Strathclyde University; W. Monaghan.

(c) 1968.

124 Productivity

(1) Demarcation rules and related practices

(a) Rules and conventions defining the allocation of work between workers of different skills are known to be important in several industries. The initial purpose of this enquiry is to attempt a survey of such practices so that they may be formally recorded in trade union rules, collective agreements, inter-union arrangements etc.

(b) Cambridge University; Professor H. A. Turner, G. Roberts.

(c) 1st July, 1964 - 31st July, 1967.

(d) Social Science Research Council.

(2) Employment, output, productivity and technical change in transport and communications

(a) Studies of efficiency in the use of capital, labour and technological knowledge in transport and communications over time and in particular years together with an examination of the relationship between the changes in transport and communications and movements in the economy as a whole.

(b) Cambridge University, Department of Applied Economics; W. B. Reddaway, B. M. Deakin.

(c) 1st April 1966 - 30th September 1967.

(d) Social Science Research Council.

(3) Productivity bargaining and its implications for management

(a) To seek to illustrate, by particular reference to the steel works of Stewarts and Lloyds Ltd at Corby, the problems and strains created by the implementation of a productivity bargain. Interviews with union officials and management are undertaken; an analysis is being made of the structural changes and the new procedures for communication, arising out of the agreement. Grades of labour undergoing training as a result of the bargain are completing questionnaires about their training and the problems they face in the organisation. It is intended to compare this series of events with those at Fawley and Coryton.

(b) Leicester Regional College of Technology; D. E. John.

(c) 1966 - 1968.

(4) Aspects of productivity in the building industry

(a) To study productivity by direct observation on site, including the comparison of contractors' site lay-out and organisation and the measurement of productivity in building operations in a variety of building types by various contractors. This can be more specifically divided into 3 categories;

(i) to investigate the organisation of work on site and the production methods employed

(ii) to study the development of "skill through experience" i.e. the learning curve, and

(iii) to investigate the costs incurred in handling, transporting and preparing materials for incorporating into the works.

(b) Salford Royal College of Advanced Technology; Professor W. Fitton, N. B. Harries.

(c) July 1964 - September 1969.

(d) Science Research Council.

Related Projects 520(1); 953(2).

125 Industrial relations (including collective bargaining)

Industrial relations within the motor car industry in the West of Scotland.

(a) A study is being made of industrial relations within the motor car industry in the West of Scotland. As this is a new industry in Scotland, the study will cover the initiation and development of these relations. The initial attitude of workers and management coming from different industrial backgrounds will be studied together with the possible development of new attitudes and of an ethos particular to the industry.

(b) University of Strathclyde; Dr. A. J. M. Sykes, D. A. Gotting.

(c) 1st April 1963 - 31st December 1967.

(d) Social Science Research Council.

Related Projects 554(2).

13 LEGISLATION EXCLUDING TRAINING LEGISLATION

130 General

131 Educational legislation

Related Projects 260.

132 Safety, health and welfare legislation

14 TRAINING LEGISLATION

141 Industrial Training Act

(1) Critical assessment of the initial impact of the Industrial Training Act on selected industrial training schemes

(a) The main part of the work will involve case histories of the impact of the Act on the training arrangements of a small number of firms, describing arrangements before the Act and detailing subsequent developments. A postal questionnaire of a sample of firms is planned.

(b) Nottingham University; W. J. Giles.

(c) 1964-1968.

(2) Impact of the Industrial Training Act with particular reference to the engineering industry in Glasgow and the West of Scotland.

(a) To establish the present situation regarding training, and numbers and background of training officers and the types and levels of training undertaken.

(b) Strathclyde University, Department of Sociology; Dr. A. J. M. Sykes, D. McLennan.

(c) October 1966-1969.

(3) Effect of the Industrial Training Act on personnel management in North East Scotland

(a) The effects of the Act on the following topics are being investigated:-

(i) the number of personnel managers employed, their qualifications and background, their responsibilities for training and selection;

(ii) the number of specialist training officers employed, their relationship with personnel managers and

(iii) the co-operation with education establishments at all levels.

Data will be obtained by questionnaire and a number of industrial visits.

(b) Aberdeen, Robert Gordon's Institute of Technology; D. H. F. Gourlay.

(c) 1966 - 1969.

(4) Implications of the Industrial Training Act

(a) To study industrial reactions to the Act and particularly to the work of the Engineering Industry Training Board. To examine whether such reaction is, or is likely to be, consistent with the objectives of the legislation. The procedure has been to restrict the research to "medium-sized" engineering firms (employing 500-1,000 persons) in the Manchester area. The method employed has been to present detailed case studies together with material collected from visits and interviews with other firms in the given area.

(b) Manchester University, Institute of Science and Technology, Department of Management Sciences; J. Butterworth, G. Stretch.

(c) 1965 - 1967.

Related Projects 620(12).

15 INDUSTRIAL TRAINING BOARDS

16 CENTRAL ADVISORY BODIES

17 EMPLOYERS' ORGANISATIONS

18 TRADE UNIONS

180 General

Related Projects 331(3).

181 Trades Union Congress

182 Specific trade unions

19 OTHER ORGANISATIONS INVOLVED IN TRAINING

THE EDUCATIONAL SYSTEM

20 GENERAL

A computable model of the educational system.

(a) The aim is to create a computable model of the system which can be used to project its future development on a consistent basis, to develop and standardise the methodology for doing this, to programme a computer for carrying out the projections. Several interim publications are available.

(b) London School of Economics, Unit for Economic and Statistical Studies on Higher Education; Professor C. A. Moser, Dr. C. Smith.

(c) November, 1964 - November, 1967.

(d) Department of Education and Science.

Related Projects 551 (8); 950.

21 TEACHING STAFF

210 General

Related Projects 620 (1)

22 STUDENTS

220 General

(1) Social environment and attitudes to industrial change.

(a) To study school-children's ideas about and attitudes towards industry, the factors which form these beliefs and attitudes and the way in which they affect behaviour when the pupils go to work. Research in the pilot period was devoted to elaborating and evaluating methods of determining pupils' concepts of industry. The current part of the inquiry (i) relates these concepts to various background influences and (ii) observes the changes which early work experience produces in their concepts.

(b) Strathclyde University; A. Hopps.

(c) 1st January, 1965 - 30th September, 1967.

(d) Social Science Research Council.

(2) Students in higher education.

(a) This is a study of some 500 students from the National Survey Sample (see under classification 120) who are in the universities and training colleges. Detailed questionnaires covering study habits, as well as many other aspects of university and training college life have been despatched and a series of group interviews with the university students have been made in which certain set topics were discussed. The results of this study will be put into the context of the information collected earlier about the education of the whole Survey sample.

(b) London School of Economics; J. W. B. Douglas, D. M. Nelson, Miss J. M. Ross.

(c) Continuing.

(d) Medical Research Council.

Related Projects 242 (3); 242 (4); 620 (9); 620 (10); 623 (3); 762 (2); 811 (3).

23 RELATIONSHIP BETWEEN EDUCATION AND TRAINING.

230 General

(1). Follow-up of an enquiry into the plans, aspirations and expectations of school-leavers.

(a) Some 300-400 young people are being interviewed, nine or ten years after they were first encountered in a study of school-leavers. Several of these will have had experience of higher education and are being questioned about their careers to date, their evaluation of school, further and higher education etc.

(b) London University, Birkbeck College; Thelma Veness.

(c) May, 1965 - November, 1967.

(d) Social Science Research Council.

(2) Effect of comprehensive school education on the social adjustment of school-leavers in Coventry.

(a) A study involving a follow-up of 150 school-leavers (of 1963) from three school systems, secondary modern, grammar and comprehensive, in the age groups, 15, 16 and 18 years, and an assessment of their social adjustment in terms of work, family, recreation, religion and politics. The follow-up includes an objective assessment of work or college progress provided by employers and tutors and interviews with parents. In addition, a general assessment of the overall position in Coventry is being attempted by an analysis of participation within youth clubs and further education activity, and of employers' awareness of the school background of their employees.

(b) Coventry Lanchester College of Technology; W. F. Gatteridge.

(c) The field work of this project has been completed and publication is planned for 1967.

(3) Present adult occupation and technical college achievement during apprenticeship; a follow-up study.

(a) Four studies of first-year entrants to local technical colleges have been carried out in the ten years 1950 - 1960 giving data on about 2,000 students whose ages now range from 20 to 30. Questionnaires covering facts and comments on industrial experience and training, technical college education and problems encountered between leaving school and becoming an adult worker have been despatched and subsequently a ten per cent sample are to be interviewed. The project will study the relationship between intellectual promise and individual expectations on starting work to the final achievement at college and adult status in industry, with a view to discovering how far difficulties, dissatisfactions and under-achievement are related to previous education, family background and type of employment.

(b) Birmingham University, Institute of Education; Professor A. Peel, Lady Ethel Venables.

(c) 1st May, 1964 - 31st August, 1966.

(d) Nuffield Foundation.

Related Projects 120 (3); 242 (5); 261 (1).

24 GUIDANCE AND PLACEMENT

240 General

241 Educational guidance

(1) Selection of courses by students at colleges of further education.

(a) This project was particularly concerned with students studying engineering on a part-time day-release basis and their selection into the most suitable courses according to their abilities. Investigations were made to assess the factors, level and patterns of measured abilities, levels of attainment, interest, aspirations, attitudes towards further education, general socio-economic background and staff comments which appeared to contribute significantly to the progress of students in their chosen courses and careers. Attempts were made to follow the students through their trial course. The relationship between individual test scores, patterns of scores, examination results was ascertained and norms on various psychological tests were established for specific groups of engineering students.

(b) National Foundation for Educational Research; Dr. K. M. Miller.

(c) 1959 - 1965.

(2) Factors influencing choice of higher education.

(b) Essex University, Department of Mathematics; Professor G. A. Barnard.

(c) September 1966 - September 1969.

(d) Department of Education and Science.

Related Projects 242 (2).

242 Vocational guidance

(1) Development of an occupational interests questionnaire.

(a) The objective is to produce an effective measure of occupational interests of school-leavers which should prove helpful to careers masters, youth employment officers, etc. Information will be published in 1967 as an abstract in the Bulletin of the British Psychological Society.

(b) Edinburgh University, Applied Psychology Unit; D. McMahon.

(c) 1967.

(2) Factors contributing to the choice of courses and careers of secondary school pupils.

(a) An investigation to assess the factors which appear to contribute significantly at secondary school level to choice of courses and careers. These factors include level and patterns of measured ability, levels of attainment, interests, attitudes towards school and education, the aspirations of parents, teachers recommendations, socio-economic background and the educational and vocational objects of the school. The sample is approximately 12,000 with both sexes being about equally represented.

(b) National Foundation for Educational Research; Dr. K. M. Miller.

(c) 1958 - 1967.

(3) Attitudes of public schoolboys to careers in industry.

(a) The aim of this project is to study the attitudes to careers in business and industry and the factors affecting these attitudes. A questionnaire survey was carried out in 1965 and 1966 amongst sixth form public schoolboys attending careers conferences.

(b) Ashridge Management College; Miss A. G. Pincer Smith.

(c) 1966 - 1967.

(4) Factors influencing a graduates' choice of career.

(a) To investigate the educational, personal, institutional and other influences which may affect career choice and to relate the occupation chosen to an occupational interests profile; to discover more about the process by which their choice is made; to produce a norm for use with the Connolly Occupational Interests Inventory and to feed back useful information to the Appointments Boards. Questionnaires were sent to a random sample (16,000) of the graduates from 22 universities in the summer of 1965. An occupational interests inventory was sent out with the main questionnaire and an attempt will be made to relate career or occupation chosen with occupational interests profile. A proportion of the respondents will be interviewed to discuss their responses.

(b) Aston University, Applied Psychology Centre; G. W. Brown.

(c) May, 1965 - September, 1966.

(5) Psychological and sociological factors in the occupational choice and placement of school-leavers.

(a) It is hoped to identify the various influences of the school (curricular and extra - curricular, personal and social) upon the occupational choice of school-leavers, to specify the various effects of school life upon the vocational aspirations (and ultimately upon vocational opportunities and choice) of school leavers. A variety of contrasting schools in the West Riding will be studied. This project forms part of a vocational guidance research programme, the remainder of which is supported by the Gulbenkian Foundation.

(b) Leeds University; Dr. P. P. Daws, B. Hopson.

(c) 1st October, 1964 - 31st July, 1968.

(d) Social Science Research Council.

(6) The occupational aspirations of young men (17-21) and their attitudes towards employment.

(a) A study in the Sheffield area of men and their reference groups, using questionnaire techniques. The young men are in the age-groups from which the army draws its recruits and come from various social and educational backgrounds. The aim is to obtain information on civilian attitudes towards employments to which intramural recruitment studies can be related and to help in the formation of recruitment policy.

(b) Sheffield University, Department of Sociological Studies; Professor R. K. Kelsall, Dr. P. H. Mann.

(c) October, 1963 - September, 1966.

(d) Ministry of Defence (Army Department).

(7) Factors influencing occupational choice among scientists and engineers.

(a) An exploratory survey into the influence of social origins, type of schooling and parental occupation on the choice of occupation amongst undergraduate students of science and engineering as a preliminary to formulating proposals for more detailed study by interview, questionnaires etc. The preliminary study consists of the analysis of background data held in university records.

(b) Manchester University, Institute of Science and Technology; T. M. Mosson.

(c) 1966 continuing.

(8) Occupational psychology and national differences.

(a) This project is concerned with the further analysis of data coming from a survey of 2,500 randomly selected adults (21-65 years of age) who are "born and bred" English. Data were gained through double interviews, questionnaires and tests covering among other things, abilities, attitudes, values and personality characteristics. Part of the project is to relate these data systematically to United Kingdom occupational types (particularly in technology) the object being, through a study of the psychology of occupations, to contribute to the design of education, vocational choice and selection, and to the design of jobs.

(b) Tavistock Institute of Human Relations; Dr. F. E. Emery.

(c) 1st August, 1966 - 28th February, 1967.

(d) Social Science Research Council.

243 Youth Employment Service

244 Other related services

245 Orientation, pre-employment work experience

(1) Ten year follow-up study of the outlook and adjustment of middle and working class adolescents.

(a) Eleven years ago, as part of a series of studies on social mobility, the behaviour, school performances, vocational aspirations, personality and attitudes of some 600 boys were examined. The purpose of the enquiry was to see how far differences obtained were related to differences in intelligence, schooling and social background. Some 460 of these boys, now about 25 years of age, were re-interviewed in order to study their vocational adjustment, relations with workmates, their aspirations generally, etc. Particular interest lay in the examination of two deviant or socially mobile groups, the working class boy in the grammar and the middle class boy in the secondary modern school. This longitudinal study helped to establish when given attitudes take shape and how far behaviour and adjustment at school and during adolescence are in fact predictive of later adjustment.

(b) London School of Economics; Professor Hilda Himmelweit.

(c) 1st September, 1960 - 31st August, 1965.

(d) Science Research Council.

(2) The adjustment to employment of secondary modern children; a follow-up study.

(a) The investigation was primarily concerned with 100 youths and 100 girls who left secondary schools in Sheffield in 1959, and who were respondents for a DSIR - sponsored study of the transition from school to work. The research was designed to establish patterns of occupational mobility and to examine participation in - and the value of - further education and training. The data was analysed with reference to the information on job aspirations and intentions which was obtained as part of the original research in 1959. "Into Work" by M. P. Carter published by Penguin Books Ltd., 1966.

(b) Edinburgh University; M. P. Carter.

(c) 1st January, 1964 - 31st December, 1965.

(d) Science Research Council.

(3) The adjustment of young workers to work situation and adult roles.

(a) When they go to work, young workers have to make a wider adjustment to a situation and to roles which are new to them, whose implications are often imperfectly understood by them and by the adults concerned and for which they are in many cases, not too well prepared. The project investigated this adjustment which young workers have to make in their relationship with older workers and supervisors; to job problems and to their role as workers; and their role as wage earners in home relations and in their leisure time. The factors examined included differences in size of organisation, between sex and between young workers in jobs requiring different degrees and different types of skill.

(b) Leicester University; Professor I. Neustadt.

(c) 1st April, 1962 - 30th September, 1965.

(d) Science Research Council.

Related Projects 230 (1).

25 SECONDARY EDUCATION

250 General

Related Projects 230 (2); 245 (2); 800 (3); 953 (2).

26 FURTHER AND HIGHER EDUCATION ESTABLISHMENTS

260 General

Formation of government policy with regard to further education since the war.

(a) An analysis and review of government policy and national debate in the field of further education, excluding "adult education". Essentially the problem will be to analyse the relations between the institutions and organisations in the field and the attitudes they manifest and arguments they deploy and to relate both to the problems of the government which sees its alternative courses of action within the framework of harmonising and not alienating diverse interests.

(b) Oxford University, Somerville College; Dr. A. H. Halsey.

(c) 1966 - 1968.

Related Projects 220 (2); 241 (1); 311 (5); 620 (8); 620 (2); 620 (3); 733; 800 (2).

261 Technical colleges

(1) Study of a local technical college.

(a) To make a study of one local technical college in depth; its organisation, staffing, examinations, students and the firms sending young trainees to it. "The Young Worker at College" by Ethel Venables, was published by Faber and Faber in January, 1967.

(b) Aston University (Research undertaken when Lady Venables was at Birmingham University); Lady Venables, Dr. D. J. Lee.

(c) 1959 - 1964.

(d) Nuffield Foundation.

(2) Present adult occupation and technical college achievement; a follow-up study.

(a) To discover, by means of a postal survey, the following:- (i) the final stage reached at a technical college; (ii) the present job; (iii) the promotion policies of the employing firm; (iv) usefulness and appropriateness of the college studies; (v) their ideas on the education of the next generation of young workers.

The sample consists of approximately 2,000 subjects in the Manchester and Birmingham areas.

(b) Aston University (Research undertaken when Lady Venables was at Birmingham University); Lady Venables, Dr. D. J. Lee.

(c) 1964 - 1966.

(d) Nuffield Foundation.

Related Projects 620 (12); 728 (2); 760 (2); 831 (7); 953 (1).

262 Colleges of commerce

263 Agricultural educational establishments

264 Colleges of education

Related Projects 884 (2).

265 Polytechnics

266 Universities

Related Projects 853 (1); 930 (3).

267 Business schools

268 Correspondence colleges

269 Specialised (including private) colleges

27 ADULT EDUCATION

270 General

Adequacy of provision for adult education.

(a) An investigation into the adequacy of the total provision made for adult education by the existing agencies in selected areas, chosen to reflect different types of environment. Factors to be studied include the influence of attitudes and interests of individuals in the areas on the use made of the facilities provided.

(b) National Institute of Adult Education; E. M. Hutchinson, B. Groombridge, H. Sheldon.

(c) August, 1965 - April, 1968.

(d) Department of Education and Science.

271 Evening Institutes

28 TERMINAL QUALIFICATIONS

280 General

Related Projects 242 (2).

281 Certificates

282 Diplomas

283 Graduate membership

284 Associate membership

285 First Degrees

Related Projects 737; 930 (1).

286 Higher Degrees and Diplomas

29 EXAMINING BODIES

THE WORKING ORGANISATION

30 GENERAL

Working organisation and conduct

(a) An attempt to exploit the connection between studies of working organisations as they exist in western society and studies of groups of people performing contrived tasks under experimental conditions. The starting point has been presumed equivalences between findings from both kinds of study.

(b) Edinburgh University; Professor T. Burns.

(c) 1st October, 1960 - 30th September, 1965

(d) Science Research Council.

31 AREA OF ECONOMIC ACTIVITY, INDUSTRIAL CLASSIFICATION

310 General

311 Standard Industrial Classification

(1) Training for skills in the hotel and catering industry

(a) The project aims to develop a methodology for establishing training schemes for the industry based on an analysis of skills and production of pilot schemes to prove training methods. The selection of subject matter for pilot study is designed to establish and to substantiate training methods by analysis of three separate aspects; (i) the detailed analysis of perceptual motor skills involved in any given task, (ii) the social interaction involved in carrying out the task, e.g. chef/waiter interaction, waiter/customer interaction, and (iii) the organisational structure and communications network. The research is biased towards the training needs of food preparation and cookery personnel. It is hoped to extend it eventually to other hotel and catering personnel including those involved in food service, housekeeping and the work of the front office.

(b) Ealing Technical College, Dr. O. G. Pickard.

(c) 1967 - 1969

(d) Ministry of Labour, Hotel and Catering Industry Training Board.

(2) Survey of the training in the distributive trades in Britain

(a) To investigate and report on forms of training at present being carried out in the different branches of the retail and wholesale trade. To examine the skills required in the distributive trades and to draw conclusions concerning; (i) the desirable content of training programmes, (ii) the most effective methods of training, and (iii) any expansion of present training required to meet future manpower needs. This enquiry followed a similar one by Mr. Thomas into retail education.

(b) Retail Trades Education Council; P. G. Thomas (of Mander College, Bedford)

(c) 1965 - 1966

(d) Ministry of Labour

(3) Recruitment and training in Scottish local government

(a) To determine the qualifications of recruits to the local government service in Scotland and whether there is any provision for training. The procedure is by questionnaire to county councils, large burghs and about 20 small burghs.

(b) Strathclyde University; J. McGhee, C. Page.

(c) 1967 - 1968

(4) A survey of the pattern of vocational and non-vocational education in the Merchant Navy

(b) Seafarers Education Service; Dr. R. Hope.

(c) September 1964 - 1966

(d) Department of Education and Science

Related projects 121 (3) (iron and steel); 124 (4) (construction); 141 (2) (engineering and electrical); 350 (4) (printing); 360 (6) (construction); 360 (8) (construction); 551 (7) (construction); 555 (construction); 557 (4) (construction); 557 (6) (construction); 620 (2) (printing); 655 (construction); 831 (1) (gas); 831 (2) (laundries); 831 (4) (engineering).

32 IDENTIFICATION OF INDIVIDUAL FIRMS

33 PRESENT AND PLANNED WORK PROCESSES AND SYSTEMS, EFFECTS OF CHANGE

330 General

(1) Technological change and employment

(a) To examine the process by which technological change takes place, the employment effects of such change and the methods of adjustment to it by management and labour. It is important to understand what is involved in these changes, and how far management, trade unions and government can provide an environment in which the minimum of friction results from change. The investigation will be based on case studies of technological change and its effects on the employment level and structure. It will be concerned more with qualitative aspects of change.

(b) Glasgow University; Professor D. J. Robertson.

(c) 1st October, 1963 - 30th September, 1967.

(d) Social Science Research Council.

(2) Collaboration in the design and implementation of change in the sociotechnical systems of two large enterprises in process industries

(a) Objectives: to assist an organisation to clarify its objectives, and reconsider and change its organisational and technical systems, so as to increase the internal motivation of its personnel at all levels, and enable them to release talent and enterprise and thus improve efficiency, as well as work satisfaction.

Procedure: agreement with senior management on a company philosophy based on the above ideology. The diffusion of the philosophy to all levels of management, unions and and shop floor by discussion at conference. Studies of socio-technical systems to test out change possibilities. Support for all personnel to suggest and try out changes based on the above notions.

(b) Tavistock Institute of Human Relations, Human Resources Centre; E. L. Trist, Dr. H. Van Beinum, Dr. F. E. Emery.

(c) 1965 continuing

Related Projects 360 (10); 557 (1)

331 Technological development including automation

(1) Organisational implications of technological and social change

(a) An analysis of the impact of social, economic, demographic and technological change on the organisational needs of a public utility.

(b) Ashridge Management College; R. F. Stuart

(c) 1966 - 1967

(2) Innovation and the firm

(a) There is often considerable delay between the introduction of an innovation by the company undertaking research, and its adoption by other firms in the industry. It is planned to study the length and reason for this delay in the spread and acceptance of new ideas in a number of industries. Various factors will be considered and their relative importance evaluated. The British results will be compared with those obtained from this type of study in the United States.

(b) Birmingham University; J. M. Samuels, D. J. Smyth

(c) 1st October, 1965 - 30th September, 1968

(d) Social Science Research Council.

(3) Trade union decision-making in a situation of technological change

(a) This study was concerned with the decision-making process of trade unions operating on a green-field site, where a high degree of automation was intended. The work illustrated some of the problems which confront unions in this type of situation. Their responses were correlated with the marked differences they have in structure, tradition, style of leadership, ideological approach and distribution of roles.

(b) Cardiff University, College of South Wales and Monmouthshire; Professor M. P. Fogarty.

(c) 1st June, 1963 - 30th September, 1965

(d) Science Research Council.

(4) Communications, workers' attitudes and industrial change

(a) This is a comparative study of the relationships between (i) the modes of internal communication, (ii) the workers' understanding of management's problems, policies and purposes in instituting change and (iii) the workers' co-operation with management in effecting change, in seven industrial companies of varied size and technology. Particular attention will be paid to matters of definition, of setting up a criteria and of devising measures of the factors and their inter-relationships so that conclusions may be quantitative as well as qualitative. Most of the research will be based on the techniques of interview and questionnaire, but it is hoped to incorporate experimental techniques by which specific changes in methods of communication will be introduced and specific improvements effected in the understanding of communication needs.

(b) Manchester University, Institute of Science and Technology; Professor R. B. Dew, C. I. Cox, W. A. Warmington.

(c) 1st January, 1965 - 30th June, 1968.

(d) Social Science Research Council.

(5) Human factors problems in changing industrial systems

(a) The aim is to investigate human factors problems arising from the design of new industrial systems, and to undertake experimental research which will reduce the impact of such problems in future designs. Up to three research assistants per year will be seconded to the project from different industrial Research Associations and will work on topics relevant to their own industries.

(b) Aston University, Applied Psychology Centre; Professor W. T. Singleton, D. Whitfield, D. Towers.

(c) 1st October, 1965 - 30th September, 1968

(d) Social Science Research Council.

(6) Effect of computers and automation schemes on organisation and performance

(a) This research, to be pursued in a number of case studies in the metallurgical industry in South Wales is intended to examine the effectiveness of schemes involving the use of computers and associated equipment to handle and process information and to examine the effect of their functioning on works organisation and performance. The ultimate intention is to draw a general conclusion from the studies about the design of such systems for greater effectiveness in implementation and operations.

(b) Cardiff, University College of South Wales and Monmouthshire; C. G. L. Wright.

(c) 1st January, 1966 - 31st December, 1966.

(d) Social Science Research Council.

(7) Aspects of technological change

(a) Studies are proposed to examine changes in job profiles, workers' skills and attitudes which take place when a substantial technological change occurs, e.g. the introduction of a computer or a large automatically controlled process.

(b) Birmingham University, Department of Engineering Production; Dr. D. E. N. Corlett.

(c) 1st October, 1965 - 30th September, 1968

(d) Social Science Research Council.

Related Projects 121 (4); 124 (2); 220 (1); 350 (3); 351 (3). 360 (3); 540 (6); 541 (2); 552 (1); 557 (2); 557 (3);

34 CONDITIONS OF EMPLOYMENT IN THE ESTABLISHMENT

340 General

341 Welfare arrangements

342 Standard of discipline

Punishment in industrial firms

(b) Strathclyde University; T. Paterson

(c) 1969

343 Remuneration and methods of payment

344 Hours and pattern of working

345 Holidays

346 Arrangements for termination of employment

Redundancy problems of industrial workers

(a) To examine the methods used to select personnel to be dismissed and the effects of these methods on the manpower requirements of the company. To discover and test improvements in selection methods which will best suit the needs of the organisation and the individuals. To determine to what extent training and retraining facilities are adequate to make best use of the displaced skills.

A field investigation is being made of actual redundancies together with simulations of the results of alternative procedures.

(b) Brighton College of Technology; P. A. Mumford.

(c) 1965 continuing.

35 ORGANISATION AND COMMUNICATIONS IN THE ESTABLISHMENT

350 General

(1) Economic context of organisational functioning

(a) The investigation concerns the structure and functions of work organisations and the behaviour of people within them. Three levels of analysis have been defined, the organisation, the group and the individual. These are being studied with regard to the relationship and variations between them. Scales have been developed to measure variables of organisation structure and of the environments or contexts in which such structures occur. Field work on the first sample of over 50 Birmingham organisations has been completed and the data has been analysed. With the co-operation of the Administrative Staff College, Henley, the work is being extended to a nation wide sample of organisations.

(b) Aston University; D. S. Pugh.

(c) 1st September, 1966 - 31st August, 1969.

(d) Social Science Research Council.

(2) Security, flexibility and efficiency; an experiment in industrial organisation and relations in Fairfields (Glasgow) Ltd shipyard at Govan

(a) The areas of research interest include the changing environment and attitudes within a shipyard, labour turnover with an analysis of causes and economic cost, trade union organisation and communications in the yard and in the shipbuilding industry, an analysis of shipbuilding costs and wage negotiations and productivity bargaining.

(b) Strathclyde University, Department of Economics; Professor S. G. E. Lythe.

(c) 1st June, 1966 - 31st May, 1968.

(d) Social Science Research Council.

(3) Study of decision-making and adaptation to change by management in the hospital service

(a) To construct "models" of management processes from which predictions can be made of the effect of the introduction of changes in these processes, to identify aspects of management which will repay further study.

(b) Tavistock Institute of Human Relations, Institute for Operational Research.

(c) 1964 - 1966

(d) Ministry of Health

(4) Problems of organisation and communication associated with growth

(a) The main investigation is taking place in a small family firm in the printing industry which has recently merged with two other companies to form a group. It includes an element of action research in that the research team works in close association with the management of the group, advising them on the consequences of action and decisions. For comparative purposes, studies have also been carried out in other small but expanding concerns. The theoretical orientation of the study is that change is resisted and growth imperilled when expectations about roles and status in the organisation lack clarity and reciprocity. It is intended that the present study should form one of a series devised to test this theoretical approach.

(b) Ashridge Management College; P. J. Sadler

(c) 1st January, 1965 - 31st May, 1967

(d) Social Science Research Council.

(5) Collaboration in the design and implementation of changes in management philosophy and organisation in a large manufacturing - marketing complex

(b) Tavistock Institute of Human Relations, Human Resources Centre; Dr. G. W. Higgin, H. Bridges, S. Baddeley.

(c) 1965 continuing.

Related Projects 124 (3); 331 (1); 331 (6).

351 Formal Organisation Structure

(1) Studies in organisation in a light engineering plant

(a) To make a comprehensive study of the organisation, communications and human relations in an engineering plant with a view to recommending some re-organisation including retraining. The plant consists of four factories with different products and technologies on the same site. It employs over 2,000 people and is situated in a development area.

(b) Manchester University, Institute of Science and Technology; M. Z. Brooke.

(c) 1966 - 1969

(2) Structure in management and continuing studies

(a) These studies are part of a research project aimed at establishing the structural and operational features of management organisation which best contribute to effectiveness. Following an exploratory study in 18 companies in 1960, a method based on questionnaires and interviews is being used to collect standard information from companies which seek help in the solution of real problems of management organisation. Studies are made before and after changes have been introduced.

(b) National Instutue of Industrial Psychology; Dr. Isabel Blain, R. A. Owen, Miss J. A. Partner.

(c) 1967 continuing.

(3) Administrative structure of firms

(a) This involves a study of firms ranging from heavy jobbing industry supplying the capital goods market to light mass-production industry supplying the consumer goods market. Attention is focused on past and contemporary reactions in structure to pressures arising from the product market, the supply of labour and raw materials and technology changes.

(b) Strathclyde University; Professor T. T. Paterson

(c) 1st October, 1962 - 30th September, 1967

(d) Social Science Research Council

Related Projects 557 (3).

352 Informal work relationships

353 Social relationships

354 Communications within the firm

(1) Communications in a large industrial organisation as related to employee attitudes

(b) Belfast, Queen's University; G. Shouksmith, P. Gillies.

(c) 1966 - 1968

(2) Communications and consultation between shop floor and management

(b) Birmingham University; Dr. N. S. Ross

(c) 1966 continuing

Related Projects 331 (4); 360 (1).

355 Written rules and procedures

356 Unwritten procedures and customs

36 MANAGEMENT FUCTIONS AND TECHNIQUES

360 General

(1) Information flow in problem solving in an engineering design group organisation change in an engineering design group and problem solving and communications in a factory management group

(a) Underlying this work is an attempt to relate the theory of social systems to the methods individual managers use in organising their own work. Data is collected on the current problem portfolio of each manager, on the sources of his problems and on the sources of help on which he called for their solution.

(b) Cambridge University, Department of Engineering; D. L. Marples.

(c) 1967 continuing.

(2) Identification of training needs in management development

(a) The project was a logical extension of previous projects on the evaluation of management training and management appraisals.

A major difficulty in management training and in the evaluation of managers is to define clearly the objectives of training in the first case. This pre-supposes that training needs have been identified. The questions to which answers were sought included:-

(i) What attempts are made to identify training needs in organisations;
(ii) How and by whom is this done;
(iii) What action results;
(iv) What are the organisational relationships involved;
(v) What provision is made for follow-up and evaluation.

(b) Edinburgh University; R. M. Mackenzie, Miss K. H. Rowe.

(c) 1st November, 1963 - 30th September, 1965

(d) Science Research Council

(3) Managerial implications of office automation

(a) The project is concerned with the implications for management structure and organisation of the utilisation of computers with "integrated" functions. Emphasis will thus be on (i) the roles of various functions and specialists and their co-ordination; (ii) the distribution of responsibility for decision taking and (iii) the implications for higher management control, the managerial resistances to change which arise and why and the future of the new computer elite in the management ranks.

(b) Salford Royal College of Advanced Technology;
Professor W. H. Scott, J. E. Hebden, M. J. Rose

(c) 1st April, 1964 - 31st July, 1967

(4) Using the concept of "Management by Objectives" to explore ways of improving management appraisal procedures especially with a view to improving management performance and encouraging management development

(a) This project is currently being pursued in two organisations. An attempt is being made to make a survey of the situation before objectives are set, to help in the setting of objectives, to devise a procedure to link appraisals to these objectives and subsequently to make a further survey to discover any evidence of improvements resulting from this process - with particular reference to improved performance and the identification of individual training needs.

A third organisation has expressed interest in collaborating in a similar study and this will be taken up as soon as possible. As the three organisations cover services, transport and manufacturing, they will provide an interesting diversity of situations.

(b) Edinburgh University, Department of Commerce; Miss K. H. Rowe.

(c) 1966 continuing.

(5) Problems and practices in management appraisal

(a) The objectives of this enquiry are to carry out a broad survey of current practices in management appraisal in industry, commerce and the public services and to undertake some validation of the differing approaches to appraisals where encountered.

(b) Ashridge Management College; Dr. A. R. B. Sketchly, J. L. Metcalfe.

(c) 1st January, 1966 - 31st December, 1967.

(d) Foundation for Management Education and Social Science Research Council.

(6) Management science and the construction industry

(a) Basis for an M Sc thesis.

(b) Salford Royal College of Advanced Technology, Department of Civil Engineering; Professor W. Fitton, N. B. Harries.

(c) January, 1966 continuing.

(7) Descriptive and analytical studies of the introduction of "management by objectives" into an industrial organisation.

(a) One aim of the project is to introduce "management by objectives" into the existing range of management practices within a large light engineering company. Objectives will be set and co-ordinated at the managerial, supervisory and operative levels. A second aim is to assess the effects of this change in practice on the following variables: output, quality, costs, supervisory attitudes, job satisfaction, accidents, absence, labour turnover, and industrial relations.

(b) Edinburgh University; M.C. Knowles, Mrs. A. D. Knowles.

(c) 1966 - 1967.

(d) Foundation for Management Education.

(8) Management techniques in the building industry

(b) Strathclyde University; Professor T. Paterson, J. Brunjes.

(c) 1968

(9) Analysis and evaluation of managerial decisions in an expanding engineering firm

(b) Strathclyde University; Professor T. Paterson, R. Hart.

(c) 1967.

(10) Management problems associated with the introduction of new management techniques

(a) To establish the reasons for the successful use of new management techniques by industry and the main reasons for any operational failures; to establish the relationship between productivity and the use of new management techniques and to stimulate the introduction of certain new tools of management into the engineering and machine tool industry.

(b) Manchester University, Institute of Science and Technology; G. A. B. Edwards.

(c) 1962 continuing.

(11) Personnel problems of an industrial organisation studied by a team of social scientists of varying specialisms

(a) The group was invited by an industrial company to study personnel problems of their own choosing. Work has begun on a study of sources of strain in managerial roles, and on an investigation of the relevance of learning theory to training and efficiency.

(b) York University, Institute of Social and Economic Research; Professor J. Wiseman.

(c) 1966 - 1967

(12) Patterns of executive leadership

(a) Research is designed to assess the effectiveness of executive leadership on the attitude and motivation of subordinates. The study is being carried out by questionnaire survey in a number of industrial concerns.

(b) Ashridge Management College; P. J. Sadler

(c) 1966 - 1967

Related Projects 141 (3); 855 (2).

37 PARTICULAR ORGANISATIONAL PROBLEMS

370 General

371 Small firms

Related Projects 551 (2).

372 Firms in remote areas

38 JOINT CONSULTATION

380 General

(1) Purpose of joint consultation in the coal mining industry

(b) Cardiff, University College of South Wales and Monmouthshire; P. D. Anthony

(2) Details of employment, education, training and union activities of engineering industry shop stewards in Coventry

(b) Coventry Lanchester College of Technology; J. D. McIntrye, T. Litterick.

(c) 1965 - 1968

381 Local trade union agreements

Related Projects 613 (1).

382 Joint training committees

TRAINING SPECIALISTS

40 GENERAL

41 RESPONSIBILITIES AND DUTIES

410 General

Related Projects 141 (3).

411 Instructor, including part-time instructional staff such as line supervisors

Existing methods of recruitment and training of instructors for industry.

(a) A preliminary review and evaluation of existing methods of recruitment and training of instructors for industry in the United Kingdom. The primary objective is to collect information on which to base recommendations on the most effective methods of recruiting and training instructors, so that this can be disseminated as a matter of urgency. It is anticipated that, in the course of the investigation, areas where further research will be profitable, will be identified. The report will be published during Spring 1967.

(b) City and Guilds of London Institute; D. E. Wheatley, K. R. McKilliam.

(c) 1st January, 1965 - 28th February, 1967.

(d) Social Science Research Council.

412 Supervising/Chief Instructor, apprentice supervisor.

413 Training (and education) officer, basic grade.

Work of industrial training officers.

(a) The aim is to prepare a job specification on the basis of interviews (and possibly group discussions and questionnaires) with a representative sample of industrial training officers, using a technique of pin-pointing "difficulties and distastes" of work and working conditions which had been used on several other occupational groups. A report of the study is now awaited.

(b) London University, Birkbeck College; R. G. T. Morgan.

(c) 1st October, 1963 - 1966.

(d) Social Science Research Council.

414 Senior level Training (Education) Officer

415 Training (and Education) manager/director

416 Other training specialists

42 SOURCES FOR SELECTION AND RECRUITMENT OF TRAINING SPECIALISTS

43 TRAINING OF TRAINING SPECIALISTS

IDENTIFICATION OF TRAINING NEEDS

50 GENERAL

(1) Education and training requirements for scientific and technological library and information work

(a) To study in depth the form and content of education and training required for work in scientific and technological libraries nd information departments. It is intended to translate the results into terms of the education and training needed for ll levels of information work.

(b) Sheffield University, Post-Graduate School of Librarianship; W. L. Saunders.

(c) July 1966 - December 1967.

(d) Office of Scientific and Technical Information.

(2) Definition of problems of behaviour in industry

(a) Short studies of problems are being treated as a research exercise aimed at developing standardised techniques of case study for investigating problems in industry, for assessing research priorities and for improving liaison between research and practice. After each study a report is sent to the firm summarising the aspects of the problems which seemed of chief importance, listing references to scientific papers which might be helpful and the names of other people in the country who could usefully be approached for further advice. The collected information will be reviewed periodically.

(b) National Institute of Industrial Psychology; Dr. R. B. Buzzard.

(c) Continuing.

(3) Identification, measurement and satisfaction of management training needs.

(a) In the first part of the investigation an attempt will be made to define and describe two elements of current practice in respect of industrial management training: (i) the methods employed by companies to identify their management training needs and (ii) the forms and methods of training adopted, related to the needs and objectives of the organisation.

In the second part an attempt will be made to design and validate instruments for the identification and measurement of management training needs and of management training programmes.

(b) Cardiff, University College of South Wales and Monmouthshire; P. A. Anthony, D. T. E. Williams.

(c) 1966 - 1968.

(d) Ministry of Labour.

(4) Architectural education research project

(a) To study the methods of teaching and content of courses in a school of architecture, with the aim of discovering the best ways of selecting students and of educating them in a university school, with special reference to methods of developing increased sensivity to space and to human relations, and improved powers of critical judgment and ability to design effectively. The research team works in very close collaboration with the teaching staff.

(b) London University, University College; Professor Lord Llewelyn-Davies, Mrs. M. L. T. Abercrombie, P. Stringer.

(c) 1963 - 1968.

(d) Leverhulme Trust Fund.

(5) Collaborative development of systems for identifying and developing the human resources of an enterprise in a science-based fabrication industry

(a) To build a working environment which allows for the optimisation of the human and technical resources of the organisation. This is being achieved by building a system which provides for the social and psychological requirements of work, in a way that is appropriate to the technical system and which optimises these requirements with the achievement of company objectives.

(b) Tavistock Institute of Human Relations, Human Resources Centre; Dr. G. W. Higgin, H. Murray, R. I. Drake.

(c) 1966 continuing.

(6) Personnel problems of an industrial organisation studied by a team of social scientists of varying specialisms

(b) York University, Institute of Social and Economic Research; Professor J. Wiseman.

(c) 1966 - 1967.

Related Projects 311(2); 360(2); 552(2).

51 MEASURES OF OPERATIONAL EFFICIENCY

510 General.

511 Manpower turnover in the firm

Labour turnover in the food processing industry

(b) Tavistock Institute of Human Relations, Centre for Applied Social Research; J. M. M. Hill, A. F. Shaw.

(c) 1966 - 1967.

(d) National Economic Development Office.

Related Projects 610.

512 Casual absenteeism

Consistency of miners' attendance

(a) This is the second stage of the study of the consistency of attendance of 300 coal-face workers in a colliery over a three year period from 1950 to 1952. The same men's attendance over the succeeding seven years is being analysed to examine the extent of consistency in their attendance and factors which are associated with changes in consistency.

(b) National Institute of Industrial Psychology; Dr. R. B. Buzzard, [illegible]

(c) 1966 - 1967.

513 Sick absence

514 Restrictive practices and labour disputes

515 Quality standards

516 Quantity standards

517 Wastage and scrap rates

518 Down time, waiting time

519 Complaints and other opinion pressures

52 ERGONOMIC FACTORS

520 General

(1) Effect of variations in job content on productivity

(a) Although considerable economic benefits have accrued from the application of engineering ingenuity to the simplification and standardisation of work tasks, it would appear that frequently, at some stage, conflict arises between the design of jobs in production systems according to engineering principles and the findings of sociologists and psychologists about motivation and productivity. If knowledge in this field is to be built up, it would seem necessary to differentiate the various ways in which job design can be altered so that research attention could be concentrated on one variation at a time in a wide variety of situations. By applying standard methods it is hoped in time to evolve answers to the following questions; (i) What are the effects on productivity and behaviour of changes in the length of time an operator performs a series of repetitive tasks? (ii) What are the effects of different task structures on productivity? (iii) What factors modify the effects of task structure on productivity?

(b) Bradford University; Professor T. Kempner.

(c) 1st January, 1965 - 31st December, 1967.

(d) Social Science Research Council.

(2) Analysis of social and work behaviour in automatic process systems

(a) Results of this research, apart from the methodological developments of interest which may emerge, will throw light on how far different types of machine-system can be functional or dis-functional in relation to the primary group and its concomitant work behaviour. The eventual aim is to provide information which can be taken into account so that we may allow for the socio-psychological dimension in design of machine systems and work organisations.

(b) Cardiff University College of South Wales and Monmouthshire; Dr. J. K. Chadwick-Jones, C. Sheppard.

(c) 1st October, 1965 - 30th September, 1967.

(d) Social Science Research Council.

Related Projects 541(1).

521 Job circumstances

Related Projects 557(5).

522 Design, methods, Layout

Related Projects 331(6).

512 Safety considerations

(1) Comparative studies of accident causation in industry

(a) To look for the combination of events and circumstances which contribute to accidents in real-life situations. Comprehensive records will be compiled of the people, work and physical and social environment in four contrasting departments contained in two factories. Continuous observations over two years will include detailed examination of all accidents, including minor injuries and damage to machines, and comparable examination of the circumstances existing at the same time to two controls who had not sustained an accident.

(b) National Institute of Industrial Psychology; Dr. R. B. Buzzard.

(c) 1966 for four years.

(d) Ministry of Labour, Ministry of Technology.

(2) The significance of personality aspects in the incidence of industrial accidents

(b) Staffordshire College of Technology; S. A. Rashid.

(c) 1966 continuing.

53 ANALYTICAL TECHNIQUES

530 General including observation and recording

The analysis of tasks for training

(a) Task analysis is an essential basis for training. Present techniques are diverse and are not always compatible with the methods and findings of psychological research. It is proposed to survey and assess task analysis techniques and to examine their suitability for determining training requirements. Experimental training schemes will be set up based on promising methods and these will then be evaluated. Particular attention will be paid to control and non-routine tasks.

(b) Hull University; Dr. J. Annett.

(c) October, 1966 for three years.

(d) Ministry of Labour.

Related Projects 551(4).

531 Questioning techniques

532 Job breakdown TWI

533 Job analysis

534 Skills analysis

(1) Analysis of control skills

(a) The findings of previous work on control skills have suggested that there are various common elements in a wide range of these skills. These include: (i) appropriate sampling and time estimation behaviour; (ii) keeping track of many states of variables over long periods of time; (iii) detecting significant variations in a variable, particularly in the presence of "noise"; (iv) building up internal "models" of the processes and (v) constructing or having available a rule book containing the necessary facts and decision rules. An examination was made of the contribution of these factors on selected control skills in industrial settings. Methods for recording and analysing data were also investigated and some laboratory studies were undertaken. A second phase of the study extended the methods and concepts of the control skills analysis to supervisory tasks.

(b) Bristol University; R. J. Beishon, J. E. Crawley.

(c) 1st October, 1964 - 30th September, 1966.

(d) Science Research Council.

(2) Analysis of skill and knowledge content of certain craft occupations

(a) Techniques developed by the company for analytical training of operators will be adapted to the analysis of the work of the tool maker, maintenance electrician, maintenance fitter/machinist, experimental fitter tester, factory service fitter and sheet metal worker. Training manuals will be compiled to include detailed schedules for all phases of training and the basic exercises to be practised as well as the knowledge to be acquired.

(b) Perkins Manufacturing Company; L. D. Cowan.

(c) August 1966, for eighteen months.

(d) Engineering Industry Training Board, Perkins Manufacturing Co.

Related Projects 554(1).

535 Work Study

536 Statistical techniques

Statistical information on industrial training

(a) The aim was to scrutinise the statistics on industrial training already available and to consider whether other statistics were needed to answer questions being asked, or likely to be asked, by people concerned with training. A review was made of the classifications on which existing statistics were based and particularly of the categories used in compiling statistics on young entrants to employment. A report is awaited.

(b) London University, Birkbeck College; Dr. K. Liepmann.

(c) 1st October, 1963 - 30th September, 1966.

(d) Science Research Council.

Related Projects 831(3).

54 LEVELS OF ATTITUDE, KNOWLEDGE, SKILL PATTERN REQUIRED FOR JOB PERFORMANCE

540 General

(1) Job satisfaction in a power station

(a) A study of attitudes to work in a modern power station, the aim being to compare findings with similar studies made by the University of Leningrad. The hypothesis tested centred on the relationship between job satisfaction and particular kinds of work situation and skill levels. For this purpose, the sample of workers was stratified by job categories. Each subject was interviewed and, amongst other things, responded to a job attitude scale.

(b) Birmingham University, Faculty of Commerce and Social Science; A. D. Chalmers, C. R. Hinings.

(c) 1964 - 1967.

(2) Studies of process control in the manufacture of complex chemical compounds

(a) Unique skills are required to control the highly complex batch-manufacturing processes which characterise the pharmaceutical and similar industries. It is improbable that the human operator will be superceded by automatic control and it has become urgent to extend our knowledge of the ways in which the skill is performed, of how it can be predicted and whether it is trainable. The investigation builds upon beginnings made by Crossman and his colleagues at Oxford. Studies of performance using simultaneous secondary tasks are proposed, with the object of locating points of high mental loading and of identifying component processes. Work was undertaken on the measurement of ways in which operators distribute attention between multiple information sources as a function of the learned probability of signals.

(b) Dundee, St Andrew's University; Dr. N. E. Loveless, Dr. T. R. Lee.

(c) 1st January, 1964 - 31st December, 1966.

(d) Social Science Research Council.

(3) Criteria and measures of performance

(a) To develop effective methods of measuring performance at work and of recognising and of assessing the factors that affect performance both for research and practice. The scope includes the design of simple and accessible personnel records for statistical purposes, automatic devices for measuring productivity on the shop floor and the appropriate data collecting and processing techniques and computer programmes.

(b) National Institute of Industrial Psychology; J. F. Nuttall.

(c) 1967 continuing.

(d) Ministry of Technology.

(4) Study of tactual discrimination in relation to inspection tasks in industry

(a) In the past much research dealing with inspection or monitoring tasks has taken place in a military setting. Inspection tasks in industry differ from these, in that they involve senses other than visual, have frequent rather than infrequent signals and take place in a far less restricted social environment. As a result of these differences, most of the military findings are not applicable to industry. This is particularly so in the timber, textile and product finishing industries where many manufacturered articles are inspected by touch, or by touch aided by vision.

An experimental investigation was undertaken to determine the inspection efficiency of skilled female burlers and menders drawn from the worsted industry. Faults on specially manufactured pieces of worsted cloth were presented to 40 subjects under controlled working conditions. The subject's performance was measured in terms of percentage faults found and time taken, under four experimental conditions. These were; eyes only, hands only, eyes and hands (normal conditions), and eyes and hands under improved lighting conditions. The effects of performance of these experimental conditions and other factors such as the age of the subject were examined statistically.

(b) Loughborough University; Professor W. F. Floyd,
Dr. N. S. Kirk, J. Feinstein.

(c) 1st October, 1963 - 30th September, 1966.

(d) Science Research Council.

(5) Factors influencing industrial skills

(a) Two aspects of skilled performance are being explored:

(i) A survey has been made of the application of information theory to machine control by operators and methods analysis of man-machine systems. Based on this knowledge, preliminary experiments have been carried out to test the feasibility of using a secondary task to measure the difficulty of an industrial task. Further experiments are being set up to measure human performance in relation to the information presented in the work task, in particular, to examine reaction times in non-symbolic tasks for variations in degree of choice, spatial position of signal, practice and transfer of learning, the aim being to find the generality of Hick's law for applications in machine display and control design.

(ii) The requirements of the study of sensitivity of limbs in control situations make it necessary to determine the appropriate cue to which the subject is responding. Previous studies have considered both displacement and velocity but little attention has been paid to acceleration.

(b) Birmingham University; Professor N. A. Dudley, B. T. Davies, A. A. Knight.

(c) 1st October, 1962 - 31st July, 1967.

(d) Science Research Council.

(6) Field studies of changes in operator skills and attitudes in industrial situations where changes in technology are being introduced

(b) Bangor, University College of North Wales; A. D. Chalmers, Mrs. R. Bradbury.

(7) Problems of training for skill and an appraisal of the significance of the findings in relation to social and economic efficiency

(b) Heriot Watt University, Edinburgh; Professor J. Gloag, D. Macpherson.

(8) Effects of continued learning on performance standards

(a) A pilot study to discover how long learning continues and what is the effect on earnings and output by; (i) survey of existing knowledge and practice, (ii) development of in-plant recording of performance. It is hoped that a larger investigation will follow.

(b) Cardiff, Welsh College of Advanced Technology, Department of Business and Social Studies; K. F. H. Murrell, F. W. Bevis.

(c) January 1966 - September 1967.

(d) Social Science Research Council.

Related Projects 331(7); 811(2); 816(2).

541 Conceptual/intellectual level

(1) Presentation of information in skill situations

(a) To examine situations in which, in order to make an appropriate response, a human subject must classify and analyse information presented to him, rather than merely preserve a correspondence between a particular stimulus and a particular response. Experiments are being carried out on the way in which subjects combine information presented simultaneously or successively from two different sources. Particular attention is being paid to the time relation between the presentation of information and the appropriate response, with the object of clarifying the nature of the decision processes involved.

(b) Reading University; Dr. R. Davis, Dr. D. H. Taylor, D. G. Smith.

(c) 1st October, 1962 - 31st July, 1967.

(d) Science Research Council.

(2) Some perce[illegible]l or intellectual skills likely to become of increasing importance with the growth of automation in industry.

(a) The application of automation in industry seems likely to demand different kinds of skills from those needed in the past. The man acting as a monitor in an automated system will probably; (i) remain inactive but alert over long periods; (ii) notice when the performance of the machine deviates from the ideal by an appreciable amount; (iii) decide on the appropriate action to be taken when (ii) occurs and (iv) initiate and carry out appropriate corrective action.

Activities (i) and (iv) have already been extensively investigated in work on vigilance and manual skills. Activities (ii) and (iii) are concerned with responding to probabilities i.e. "uncertain" cues and have received less attention. These are being investigated in the current enquiry.

(b) Nottingham University; Professor C. I. Howarth, R. McKellar, N. Richardson.

(c) 1st March, 1963 - 31st August, 1964 at Hull; 1st November, 1964 - 31st August, 1967 at Nottingham.

(d) Science Research Council.

(3) Perceptual adaptation and perceptual-motor learning

(a) The studies fall in three groups; (i) concerned with perceptual adaptation to visual distortion, using closed-circuit television and video-tape recording to separate kinaesthetic from other sources of information; (ii) examines the effects of replaying a subject's own performance on his later perceptual-motor learning; (iii) investigates "second-hand" perceptual-motor learning, the effect on a subject's performance of watching taped records of a standard performance recorded by another subject.

(b) Belfast, Queens University; Dr. P. McEwen.

(c) 1st July, 1965 - 30th June, 1968.

(d) Social Science Research Council.

542 Vigilance levels, i.e. for monitoring tasks

Related Projects 534(i).

543 Practical/constructional/manual level

Related Projects 624(2).

544 Physical-activity level

545 Social interaction/communication level

Social skills

(a) To explore the structure of each individual skilled performance in social situations, using concepts and methods derived from the experimental psychology of perceptual-motor skills. Emphasis is placed on the purpose of inter-action, and on how an individual attempts to achieve it, as well as on the development of a stable pattern of interaction between people. Laboratory experiments have been completed on the determinants and role of eye contact, bodily movements and non-verbal aspects in interaction. Field studies have been carried out on training in social skills.

(b) Oxford University; M. Argyle, Dr. A. Kendon.

(c) 1st October, 1963 - 31st July, 1967.

(d) Social Science Research Council.

55 SPECIFIC CATEGORIES OF STAFF REQUIRED

550 General

Related Projects 242(8)

551 Manager

(1) Contributions to the development of management studies

(a) To establish factual information on the qualification and backgrounds of teachers in this field - similarly the range of teaching methods used, attitudes towards selection, examinations, etc. Pilot surveys have also been undertaken into management training practices and attitudes in firms and the attitudes of students towards the content and methods of the Diploma Course.

(b) The Polytechnic, Regent Street, London: F. G. Limb, R. L. James, D. L. Pearce.

(c) June 1963 - 1970.

(d) Foundation for Management Education. Department of Education and Science.

(2) Training of managers for small businesses

(a) This study examined the position of the smaller business and in particular the question of management training. Specifically it was intended to answer the question "what training courses should be organised for managers of small businesses?".

A survey was conducted amongst smaller firms in Hertfordshire to attempt to establish (i) the way in which managers themselves viewed their training needs in terms of subject matter, length of course, etc., and (ii) an objective assessment of training needs in terms of the functions performed by managers in the course of their duties.

(b) Hatfield College of Technology: J. Kirton, J. Pincus.

(c) 1st September, 1963 - March 1966.

(d) Social Science Research Council.

(3) Survey of training facilities in administration and management

(a) To provide, for a committee considering the future pattern of training in management for local government officers, a preliminary survey of the facilities in England and Wales for training in management and administration generally. Letters were sent to all institutions of higher and further education (except specialised colleges of agriculture), all residential colleges of adult education, independent management colleges, leading consultants and training organisations (616 bodies in all). There was an 80% overall return figure. Replies, mainly prospectuses, have been analysed and information extracted about titles and courses offered, duration, whether residential, level or kind of manager for whom it was intended, outline of syllabus where appropriate and an indication of methods. Report submitted in January 1967 to be published at a later stage.

(b) York University; R. K. Alderman, A. Dunsire.

(c) October - December 1966.

(d) Association of Municipal Corporations.

(4) Analysis of managerial skills; field studies of managerial and supervisory skills in the baking, paper-making, and power generating industries

(a) Following the successful application to process control skills of techniques derived from systems and control engineering approaches, it is proposed to attempt the analysis of supervisory and managerial skills along similar lines. Particular attention will be paid to the relationship between such skills and organisational structure both within the plant and in the community outside. The investigation is planned at two levels; (i) the character and patterning of roles studied by the sociologist and (ii) the detailed decision making by the psychologist. It is hoped to develop models of managerial behaviour which will throw light on the cognitive processes involved.

(b) Bristol University, Department of Psychology and Sociology; R. J. Beishon, R. Houchin.

(c) 1st October, 1966 - 30th September, 1968.

(d) Social Science Research Council, Central Electricity Generating Board.

(5) Data processing management

(a) The objective was to make a preliminary field study of Data Processing Managers with a view to determining individual characteristics, their place in the organisation, their responsibilities; also particular problems encountered in carrying out their responsibilities for systems development and in initiating and staffing a data processing installation. The study involved the use of a questionnaire and interviewing of 30 data processing managers.

(b) Henley, Administrative Staff College; R. J. Harper.

(c) 1965 - 1967.

(6) Industry differences in the backgrounds and careers of managers

(a) Analysis of data collected in connection with earlier studies of the backgrounds and careers of managers in the North West (M.Sc. thesis, published by D. G. Clarke as "The Industrial Manager; His Background, and Career Pattern", Business Publications 1966) to establish the existence of marked differences with regard to educational backgrounds, age and career patterns between managers in different industries.

The broad industries concerned are, chemicals, metal manufacture and engineering, textiles and clothing. International comparisons are being attempted on the basis of published data. The study, being jointly undertaken with D. G. Clarke (Salford R.C.A.T.) is intended to be the preliminary to further more detailed investigation which could be linked with management training needs.

(b) Manchester University, Institute of Science and Technology; T. M. Mosson.

(c) 1966 continuing.

(7) Training of staff for management in the construction industry

(a) To discover how effective existing training is in the firm and educational institutions and to study the content and duration of such training in the light of the demands put upon the individual by contract management both at present and in anticipation of likely technical changes. A study is being made of the position in a number of firms. Interviews are being conducted at technical colleges providing courses and with personnel attending the courses and a questionnaire is being prepared.

(b) Brixton School of Building; D. E. Aston.

(c) 1964 - 1968.

(d) Ministry of Public Building and Works.

(8) Problems of management education

(b) Reading University, Department of Economics; T. A. B. Corley.

(9) Preliminary follow-up study of mid-career management education from the standpoint of the training institution

(a) Objectives: assisting in the assessment of the value of the training institutes programme in respect of its objectives. Procedure: (i) interview (and questionnaire) of people who initiated training recommendations in the user organisations; (ii) as above with their ex-students of varying seniority (at work, and in the order they attended training); (iii) interview of staff of the training institute with considerations of students and user organisations and feed-back of ex-student views.

(b) Tavistock Institute of Human Relations, Human Resources Centre; Dr. R. N. Rapoport, M. P. Foster.

(c) 1966.

Related Projects 500(3); 831(5); 858; 920; 950(2).

552 Supervisor

(1) Changing role of the foreman in a process industry

(a) To examine the role of the foreman in one company, in the light of recent social, organisational and technological changes. Perceptions of their roles by foremen will be compared with perceptions of these roles by senior management to see if conflicting expectations exist. The study will include an appraisal of the recruitment, training and remuneration of foremen.

(b) Ashridge Management College; P. T. J. Banner.

(c) 1966 - 1967.

(2) Supervisory training - comparison of needs and objectives

(a) This is an investigation of the extent to which internal supervisory training courses in four large companies are designed to meet specific and measurable objectives, and of the relevance of these objectives to the training needs of each supervisor. The four firms to be studied are in various industries. In each firm, there will be three main areas of investigation; (i) a study of the objectives of training courses as seen by managers and trainees; (ii) an observational study of the actual content of training courses and a historical study of their development; (iii) a study of the training needs of the individual supervisor.

(b) Bath University of Technology; A. C. Hamblin, Mrs. S. M. Hubbard, I. Henderson.

(c) 1st October, 1965 - 30th September, 1967.

(d) Social Science Research Council.

(3) Education and training of supervisors

(a) A survey amongst firms and industrial organisations of the methods used to identify supervisory requirements as a basis for the development of supervisory courses; to evaluate results where possible and recommend future lines for research and development. The broad aims of the research include;

(i) to estimate the extent which British firms are currently using systematic methods to plan supervisory manpower requirements and to provide appropriate training for existing and future supervisory staff;

(ii) to discover what techniques are being used for these purposes;

(iii) to obtain opinions and other evidence of the effectiveness of these techniques;

(iv) to seek evidence of the relationships between the appropriateness of differing supervisory training methods and organisational characteristics and

(v) to seek information about factors which lead firms to take effective action to ensure high standards of supervisory performance.

(b) National Examinations' Board in Supervisory Studies.

(c) 15th March, 1966 - 15th March, 1968.

(d) Department of Education and Science.

(4) Effectiveness of supervision

(b) Manchester University, Institute of Science and Technology; B. Moores.

(c) 1966 - 1968.

Related Projects 950(2)

553 Professional and technological specialist

Factual survey of professional engineering manpower in the United Kingdom

(a) To obtain a factual picture of the qualifications, training, employment and incomes of Chartered Engineers and of those who will shortly become qualified. The survey, in which some 25,000 engineers are being invited to take part, is being carried out by means of postal questionnaires. The survey is the first step in assessing the status of professional engineers in modern society.

(b) Council of Engineering Institutions; C. Scarborough.

(c) December 1965 - 31st January, 1967.

(d) Ministry of Technology.

Related Projects 242(7); 613(2); 800(1)

554 Technician

(1) Work specialisation in the employment of engineering technicians in mechanical and production engineering

(a) To identify the elements of skill and knowledge necessary to the efficient performance of each occupation and to classify occupations in terms of common elements of skill and knowledge required, with a view to making it possible to design more relevant schemes of training.

(b) Newcastle University, Institute of Education; Professor B. Stanley, A. James.

(c) January 1967 - 1969.

(d) Engineering Industry Training Board.

(2) Study of the technician in British industry

(a) To investigate the position of technicians in the British system of industrial relations. The investigations will explore such key factors in the relationship between technicians and their employers as salary, status, promotion opportunities, etc., as well as exploring the relationship between technicians and the unions which organise technician staff. The study will be conducted in several industries which employ substantial numbers of technicians and questionnaires will be used to obtain data covering technicians employed in a wide range of plants. Recruitment, training and promotion will also be covered.

(b) London School of Economics; Professor B. C. Roberts, Dr. R. F. Banks, K. Murphy.

(c) 1st May, 1966 - 30th April, 1968.

(d) Social Science Research Council.

Related Projects 623(1).

555 Craftsmen

Operative skills enquiry, study of training methods

(a) To study the relationship between building apprentices' practical training, work requirements and technical education; their college and work environment; innovations in the training field and to devise and test alternative training methods. The aim is to provide, for those concerned with education and training in the industry, a clear picture of what apprentices need to know as the basis for determining priorities in the training time available.

The study is related to work at the B.R.S. on industrialisation and the development of an operational model for the construction industry. The latter will require information about the future needs of the industry for trained operatives.

(b) Ministry of Technology, Building Research Station.

(c) Mid 1965 - Mid 1967.

Related Projects 534(2); 620(3); 623(1).

556 Commercial and clerical

Survey into (i) the type of work required of an office junior at the present time and (ii) future trends in the duties of these young office workers

(a) Interim report available.

(b) London Kingsway College of Further Education; Miss I. Baxter.

(c) 1966 - 1967.

Related Projects 620(4); 620(11); 800(4).

557 Operator/operative

(1) Complexity of industrial tasks

(a) The increasing complexity of modern work and control raises many problems relating to the ability of operators to meet the increasing demands of their work.

The aim of this research is to examine in experimental laboratory studies and in work situations, relationships between task demands and performance that affect working efficiency. Aspects to be studied include; the methods of presenting information to the operator; the response which he is required to make; any "translation" which must be undertaken between perception and action; the relative importance of uncertainty and short-term memory.

An additional aim of the research is to examine methods of applying the results of laboratory studies to industrial situations.

(b) Cardiff, Welsh College of Advanced Technology; K. F. H. Murrell.

(c) 1st August, 1960 - 15th September, 1963, at Bristol,
16th September, 1963 - 15th September, 1966, at Cardiff.

(d) Science Research Council.

(2) Workers in chemical process (automated) plants; relations between technology and the work and non-work situation.

(a) There is a growing interest in the relations between changes in technology and variations in work and non-work attitudes and behaviour. The proposed research aims to explore such areas, focussing on workers in technically advanced process production plants. Among the questions which it is hoped to investigate are:- (i) selection and socialisation, how far do such plants attract workers with specific characteristics? (ii) the work situation, how far are such plants characterised, by job enlargement and re-integration of work tasks? (iii) labour strategy, how far is there a shift away from a "job" to a career "orientation"? (iv) non-work variables, how far do workers develop characteristic social and political attitudes?

(b) Bath University of Technology; Professor S. F. Cotgrove.

(c) January 1967 - December 1969.

(d) Social Science Research Council.

(3) Role of the shop-floor operative in a participative management system

(a) This study is concerned with investigating the effectiveness of a training course for shop-floor operatives which provides both instruction in work simplification techniques and encouragement to participate in thinking-up and implementing technical changes. The firms being studied are in the electronics industry and their managements employ what are called participative or permissive techniques.

(b) Luton College of Technology; T. W. Harries, R. D. Hanscomb.

(c) 1st September, 1964 - 20th April, 1967.

(d) Social Science Research Council.

(4) Operative skills enquiry; "Building operatives' work"

(a) The first report of the "Operatives' Skills enquiry" consisted of a factual study whose initial aims were: (i) to determine the use being made of the various types of operative skill; (ii) to determine the work required by various types of building and forms of new construction and (iii) to assess the effect of new types of construction on the work of operatives in order to identify trends.

The study covered 4,400 operatives employed on 107 new construction sites, 400 operatives engaged on repair and maintenance and 600 in factories and workshops.

Report "Building Operatives' Work", two volumes, published by H.M.S.O. in 1966 at £6.

(b) Ministry of Technology, Building Research Station.

(c) 1963 - 1966.

(5) Effect of operator variability on repetitive work with special reference to pauses and on work paced by machine

(a) Laboratory and field studies in which operator variability is used as a measure of "fatigue" in light work and in which the effect of a number of variables is assessed. The effect of variability on performance in paced conditions is being studied. Subjects work for 12 weeks under a variety of conditions on a task simulating the testing of electrical components.

(b) Cardiff, Welsh College of Advanced Technology; J. E. Cule, K. F. H. Murrell.

(c) September 1960 continuing.

(6) Operative skills enquiry; Social survey of operatives in the building industry

(a) The study of operative skills has shown that it is necessary to understand not only the technical aspects of the work but also the many social factors which have relevance to employment in the industry if any alteration to training arrangements are to prove effective.

In order to gather information about these factors - mobility, methods of recruitment, job satisfaction, attitudes to training and retraining, etc., -considerably more detailed interviews are required than are obtainable on the site.

The survey will be undertaken by interviewing in their homes 2,500 building operatives. The aim is to fill a requirement for broader non-technical information on factors affecting the recruitment and training of operatives and the effects of the changing pattern of work brought about by the move to industrialisation.

(b) Ministry of Technology, Building Research Station.

(c) April 1964 - Mid 1967.

Related Projects 620(13); 831(9)

558 Sub-operator

559 Other categories

56 OCCUPATIONAL CLASSIFICATION SYSTEMS

560 General

561 International Standard Classification of Occupations (ISCO)

Factors involved in current social changes with special reference to training for social work

(b) Strathclyde University, Department of Administration; Miss J. Baker.

(c) October 1966 - 1969.

Related Projects 500(1) (Professional and technical workers); 500(4) (Architects); 540(4)(Inspectors); 610 (Waiters); 763 (Architects); 831(6) (Cost and Works accountants); 900(3) (Nurses).

562 Occupational Survey Classification

THE TRAINEE

60 GENERAL

61 RECRUITMENT

610 General

Waiters as an occupational group

(a) To study the problems involved in recruiting and retaining waiting staff. The procedure was to carry out interviews with managers, head waiters and waiters in a small sample of hotels of different types. Interviews with waiters were directed towards:- (i) their background in terms of father's occupation, own education and previous types of employment, (ii) job mobility, (iii) attitudes to the industry and to the hotel where currently employed, (iv) attitudes of their families to hotel work.

Interviews with managers were related to recruitment, suitability of labour and labour turnover.

(b) Surrey University, Department of Hotel and Catering;
C. C. A. Gibbs, Miss J. Watts.

(c) 1964 - 1966.

Related Projects 311(3); 411; 641.

611 Recruitment brochures and application forms.

612 Sources of recruitment liaison.

613 Job description and personnel specification

(1) Survey of the application of job evaluation and similar techniques of determining relative occupational status for pay purposes in Britain.

(a) A survey of the application of job evaluation and similar techniques and an assessment of them with a view to the possibility of a standard or universal system for use in connection with national incomes policy, industrial negotiations or firms' wage-decisions.

(b) Cambridge University, Department of Applied Economics;
Professor H. A. Turner, Dr. G. Clack.

(c) 1st August, 1965 - 30th September, 1967.

(d) Social Science Research Council.

(2) Selection and training of computer programmers

(a) To evolve a workable classification and description of jobs performed by "programmers", to study present day methods and develop and evaluate suitable selection procedures. Some 400 students of a manufacturer's training course are being given tests and interviewed at intervals during the course. Instructors' assessments of progress on the course are being obtained. Subsequently the students will be visited and interviewed at their place of work and assessments of performance will be obtained from supervisors.

(b) National Institute of Industrial Psychology; J. L. Radforth, C. Kiddy.

(c) October, 1965 - September, 1967.

62 ASSESSMENT AND SELECTION

620 General

(1) Investigation into comparative methods of selecting potential further education teachers

(a) Garnett College recruits men and women in age range 25-45 as teachers. They must hold high qualifications and have had relevant experience in industry or commerce. The investigation is mainly directed at validating a one-day selection programme. The subject specialisms covered include engineering, business studies (professional and secretarial), food technology, clothing and allied subjects, printing, nautical subjects and liberal studies.

(b) Garnett College; W. A. Skinner.

(c) A longitudinal study over ten years.

(2) Selection of apprentices to trades in the printing industry

(a) To evaluate the contribution of individual components of an existing selection procedure to the prediction of on-the-job performance over a five-year period. The existing selection procedure includes fullish testing and a thirty minute interview. On-the-job performance is assessed by foreman's ratings and further education records.

(b) Edinburgh University, Applied Psychology Unit;

M. C. Killcross.

(c) Begun in 1961.

(3) Prediction scores for use in selecting men for army trades

(b) Ministry of Defence, Army Personnel Research Establishment,

L. J. Holman.

(c) 1966 continuing.

(4) Study of predictors and criteria in the selection of data processing personnel

(a) The study is concerned with methods used by IBM (UK) in the selection of personnel for data-processing occupations. Attempts are made to determine the predictive value of information available at the time of the appointment in relation to the individual's subsequent career. Information from the company's files includes biographical data, educational history, previous occupational experience, results of aptitude tests, interview ratings, marks obtained on training courses, a performance rating, promotion rate and salary growth. These were treated either as predictor or criterion variables. The sample comprised 278 male employees now working as Systems Analysts.

Three other analyses were undertaken with small groups; (i) to determine the effectiveness of selectors' judgements, (ii) to investigate the validity of the interview procedure and (iii) to find any differences which might emerge among the predictive variables from a comparison between the most and the least successful group of employees, all of whom commenced with IBM within a short period of time.

A further study dealt with the scores obtained on an experimental test battery, devised by the parent company in America which was given to a group of 84 employees.

(b) London University, Birkbeck College; R. Good.

(c) 1965 - 1967.

(5) Selection of apprentice gas-fitters

(a) To re-examine a selection procedure instituted in 1958 aimed at preventing the entry of apprentices unable to cope with the City and Guilds Intermediate Gas Fitting Course. Five of the country's twelve regional Gas Boards are using this procedure which is aimed at predicting examinations success rather than on-the-job performance.

(b) Edinburgh University, Applied Psychology Unit; M. C. Killcross.

(c) 1963 continuing.

(6) Selection of shipyard apprentices

(a) To study the relationships between scores on a selection test battery and pre-apprentices course, foremen's ratings, and performance in further education throughout the five year apprenticeship. A report will be available by the end of 1967.

(b) Edinburgh University, Applied Psychology Unit: M. C. Kilcross.

(c) 1963 - 1967.

(7) Validation of youth selection systems

(a) A new system of RAF apprentice selection was introduced in 1964. The thirteen aptitude measures used are being related to progress during training and training outcomes in each of the fourteen apprenticeship trades. Multiple-regression equations will be obtained for each trade indicating the optimum use of test scores. The research will suggest more valid selection indices and will thus lead to more effective selection decisions.

(b) Ministry of Defence (Air); G. Jessup.

(c) 1965 - 1968.

(8) Study of supplementary predictive tests (scholastic aptitude tests) for candidates for university entrance

(a) The investigation will include the assembly of information on methods of supplementary predictive testing already in use, the development of tests as may be necessary in a British university context and their application to selective groups of candidates for entrance, with the subsequent extension of tests to larger numbers and a continuous process of evaluation of the results. It is expected that the investigation will involve research into the other main instruments of the selection process, e.g. "A" level examination, school assessments and the university interview.

(b) Commonwealth Universities Association; Professor J. Drever.

(c) September, 1966 - August, 1970.

(d) Department of Education and Science.

(9) Selection and assessment of students

(a) The project is designed to examine the ways in which the characteristics of students, as assessed at the time of application for admission, interact with the characteristics of the examination system to determine the academic history of the student; to devise easily applied selection procedures of high validity; and to improve the techniques of assessment used for examination purposes.

(b) Imperial College, Department of Aeronautics and Mechanical Engineering; W. D. Furneaux.

(c) 1955 indefinitely.

(10) Study of student progress and factors effecting examinations, performance and wastage

(a) An intensive analysis of one years' entry to the College, relating an initial testing of students' personality, abilities and aptitudes to their subsequent progress through college as under-graduates. Case studies are to be made of failures or withdrawals of all kinds and of those who change courses with a follow-up of their subsequent career histories.

(b) London University, Chelsea College of Science and Technology

(c) January, 1967 - January, 1971.

(d) Department of Education and Science.

(11) Selection of card and tape punch operators

(a) Field validation of a battery of selection tests including eye-sight screening tests. Tests are being given to applicants for card and tape-punching work in a number of training schools and operational establishments and will be related to assessments of performance in the work.

(b) National Institute of Industrial Psychology; J. W. Toplis, Mrs. J. A. Chenery.

(c) 1965 - 1967.

(12) Factors effecting the selection and progress of apprentice engineering students attending block or day release courses at a technical college

(a) To investigate the social, economic and educational factors which affect the selection and progress of apprentices attending a technical college; to compare the research material with other investigations into apprenticeship and technical education and to discover the extent to which the Industrial Training Act is affecting the technical education of these young people.

The sample consists of five successive student intakes from 1965 - 1970; to follow these intakes in detail and to investigate the routing, success and failure of the students involved.

(b) Loughborough Technical College, Department of Commerce and General Education; Dr. F. E. Foden, J. L. Scotson, M. Robottom.

(c) 1965 - 1970.

(13) Selection and training of computer operating staff

(b) National Institute of Industrial Psychology.

(c) 1967.

(14) Measurement of motivational factors as an aid to pilot selection

(a) All behaviour may be regarded as the resultant of cognitive (skill) and motivational (personality) factors. Instruments for assessing the first (aptitude tests) are technically far more advanced than those for the second This means that the major part of predictions so far achieved in pilot selection is attributable to the former. This achievement has been substantial but none the less a high proportion of the total variance remains unaccounted for. Five personality and motivation instruments have been administered to all direct air crew entrants since the end of 1963. Each of these is being validated against training outcome.

The aims are; (i) to reduce pilot training wastage and (ii) to throw light on the relevance of personality and motivational factors in training of all kinds.

(b) Ministry of Defence (Air); J. B. Parry, G. Jessup.

(c) 1962 - 1969.

Related Projects. 242(8); 613(2).

621 Selection tests and examinations

(1) Feasibility of administering selection tests by programmed devices and the use of branching procedures to reduce the number of questions to be answered by a testee

(b) Ministry of Defence (Army Personnel Research Establishment); K. D. Duncan, F. McGill.

(c) 1966 continuing.

(2) Student selection

(a) A study of the inter-relation of "A" level results, performance on traditional intelligence tests, and on specially devised tasks, and final degree results.

(b) Bangor, University College of North Wales; Professor T.R. Miles, P. Harnein, N. M. Cheshire.

(c) 1964 - 1968.

(3) Assessment for higher education

(a) This investigation is designed to ascertain what measures or combinations of measures best predict success at a Scottish university, college of education or central institution. It involves a follow-up of the 11,000 young people who were examined in subjects at the higher grade of the 1962 Scottish Certificate of Education. Information obtained in 1962 and 1963 includes examination marks, scholastic aptitude scores, head teachers' assessments and sociological data and periodical reports are being obtained from the various institutions of higher education.

It is hoped that results of the investigation will assist those responsible for the selection of students for entry into higher education and will throw light on the causes of any failures.

(b) Edinburgh University, Department of Applied Psychology; M. C. Killcross.

(c) 18th November, 1961 - October, 1968.

(d) Scottish Council for Research in Higher Education.

Related Projects 930(5).

622 Assessment of the individual; measures of pre-training attainment

623 Assessment of the individual; measures of intelligence and general ability

(1) Standard tests for the assessment of the capabilities of students following certain craft and technician courses

(a) To investigate the ability of first year students on (i) craft courses, (ii) general courses in construction and (iii) construction technicians' courses, during their first few weeks at a technical college. To find out if different building occupations attract people with different abilities and what abilities first year students possess at the start of further education. To find out what percentage of students became established in supervisory capacities and whether the possession of special abilities could be observed.

After consultation with the NFER a battery of tests is given to all first year students. At the end of each academic year a three point assessment is made for each subject studied by each student. A record is kept of all external examinations students enter for and the results are recorded. An interim report is expected during the latter part of 1967.

(b) Brixton School of Building; M. Hatchett, A. O. Williams.

(c) 1964 - 1969 (testing).
1969 - 1974 (evaluation).

(2) Investigation into the validity of a non-verbal intelligence test in the selection of a specialised group of computer staff

(b) Roffey Park Institute; H. Watton Clark, G. M. Bolton.

(c) 1966 - 1967.

(d) Foundation for Management Education.

(3) Validation of student selection procedure through the use of objective intelligence and personality measures

(b) Surrey University, Department of Biological and Health Studies; Mrs. C. A. Hyman.

624 Assessment of the individual; measures of special aptitudes

(1) Tests of manual dexterity

(a) Field validation of a battery of tests of dexterity in performing tasks involving small hand and finger movements. Tests are being given for all applicants for work in the press shop of a factory and will be related to tests of subsequent performance. The work is closely linked with studies of measures of performance.

(b) National Institute of Industrial Psychology; Miss J. A. Partner.

(c) 1966.

(2) Measurement of aptitudes for basic manual skills

(a) The purpose of the project is to reconsider and re-apply tests of aptitudes for manual activities in the light of what has been learned about skill and its acquisition in recent years. Tests of manipulative ability are being analysed with a view to improving their sensivity and a modified test has been proposed and is being investigated.

(b) Birmingham University, Department of Engineering Production; Dr. E. N. Corlett.

(c) 1st October, 1964 - 31st December, 1966.

(d) Social Science Research Council.

(3) Relation between psychological test scores and mathematical attainment

(a) The objective of the research is to investigate the nature of abilities demanded by the study of mathematics, to find out when these develop and determine if they can be recognised whilst a student is still engaged in learning elementary calculations.

(b) Garnett College; D. I. McCallum.

(c) 1965 - 1969.

(4) Methods of selecting adult workers for training or re-training

(a) An examination of current methods of aptitude selection in industry in relation to their applicability to older recruits and the development and evaluation of alternative selection procedures with special reference to tests of learning ability and to "newer" skills.

(b) London University, University College; Professor G. C. Drew, Dr. E. Belbin, R. Mottram.

(c) September, 1966 - August, 1967.

(d) Ministry of Labour.

(5) Aptitude tests for Training Board apprentices

(b) Belfast, Queen's University; J. H. Neighbour.

(6) Aptitude tests for adult trainees

(b) Belfast, Queen's University; J. H. Neighbour.

(7) Development of tests of manipulative ability for selection of industrial trainees

(a) Experiments already conducted in this Department (see 624(2)) indicated ways in which traditional aptitude tests for measuring trainee's ability to acquire fine manual skills are inadequate and revised tests and methods of scoring have been developed. The proposed research involves the use of these revised tests on naive and industrially experienced subjects to determine their feasibility and prognostic value.

(b) Birmingham University, Department of Engineering Production; Dr. E. N. Corlett.

(c) 1967.

(d) Ministry of Labour.

625 Assessment of the individual; measures of personality variables

Measurement of motivation in predicting success of industrial trainees

(a) It is proposed to use newly developed methods including a polar tracking pursuit rotor, for the measurement of motivation in an attempt to predict success and application of trainees in a London technical college, and if possible, extend the range of prediction to the work records of the trainees in their parent companies. Different methods of measurement are to be compared, and validated against a variety of criteria.

(b) London University, Institute of Psychiatry; Professor Eysenck, Dr. S. B. G. Eysenck.

(c) 1st April, 1967 - 31st March, 1969.

(d) Ministry of Labour.

Related Projects 623(3)

626 Interviewing methods

627 Other selection methods

63 STAFF APPRAISAL, CAREER DEVELOPMENT, PROMOTION METHODS

630 General

631 Annual and other general progress reports

632 Career development

Related Projects 551(6)

633 Personal counselling

64 AGE GROUPS AND GENERAL CATEGORIES OF PERSONNEL

640 General

641 Adults

Adult re-training. Problems of recruitment and labour turnover

(a) Previous research has demonstrated the need for a better understanding of factors which are prejudicial to the success of adult training programmes; (i) the use of selection tests appropriate to their age and experience and

(ii) the reduction of labour turnover during and after re-training. A comprehensive study will be made of these two aspects of adult re-training both in industry and in Government Training Centres.

(b) London University, University College; Professor G. C. Drew, Dr. E. Belbin, Mrs. S. M. Downes, Miss D. B. Newsham.

(c) January 1967 - March 1968.

(d) Ministry of Labour.

Related Projects 624(4); 624(6); 811(4).

642 Women

643 Apprentices

Related Projects 230(3); 620(2); 620(6); 620(7); 620(12); 624(5); 831(10); 900(2).

644 Other Young People

Study of the employment, training and technical education of a national sample of young people

(a) This study is one of several arising out of the National Survey of Health and Development (see under 120). It is concerned with the vocational training and technical and further education of those young people in the survey who have left school and covers the period from their 15th - 18th Birthdays. Analysis of the material will aim at relating the job histories and vocational training to their expressed intentions at 15 years old, to their ability and to their family background. A special study will be made of failure and "drop-out".

(b) London School of Economics; Professor D. V. Glass, Dr. J. W. B. Douglas, D. M. Nelson.

(c) 1st January, 1961 - 31st December, 1966.

(d) Social Science Research Council.

Related Projects 556.

645 Accelerated vocational trainees

646 Older Workers

(1) Conversion training in British Rail; use of a synthetic trainer

(a) The aim of the research is to examine the problems of older trainees and the effects of training methods which are designed to overcome age difficulties in learning.

(b) London University, University College; Professor G. C. Drew, Dr. E. Belbin, J. Kirkby-Thomas.

(c) February 1966 - January 1967.

(d) Ministry of Labour.

(2) Studies in the training of adult workers.

(a) To study the best ways of developing training methods to suit the special needs of middle aged and older adults in learning new industrial skills. An attempt will be made to answer the following questions: (i) How can these training methods be adapted in practice to the type of industrial skills which are at present in short supply? (ii) Where older people are accepted for training and re-training, what reasons underly individual differences in performance and (iii) What happens to the older workers who have succeeded in training when they move into their new jobs?

(b) London University, University College; Professor G. C. Drew, Dr. E. Belbin.

(c) 1st January, 1964 - 31st August, 1967.

(d) Social Science Research Council.

(3) Vigilance and ageing

(b) Liverpool University; Mrs. A. D. M. Davies, Ph D, Dr. G. S. Tune.

(d) Medical Research Council.

Related Projects 728(1).

65 SPECIAL GROUPS OF EMPLOYEES

650 General

651 Physically handicapped

652 Mentally handicapped

Application of automated instructional techniques to the rehabilitation of mentally disabled patients

(a) The programme is primarily directed towards the problems of mental patients who are prevented by their disabilities from undertaking useful tasks. Tests of learning ability are being undertaken using a teaching machine with specially constructed guidance programmes.

(b) Cambridge University, Department of Experimental Psychology; Dr. G. L. Gedye.

(c) 1965 continuing.

(d) Medical Research Council.

653 Immigrants and non-integrated groups

Aspects of the assimilation of immigrant workers into London Transport

(a) The investigation will cover most aspects of the absorption of Commonwealth immigrant workers into London Transport. It will trace the patterns of development since London Transport began recruiting such workers in significant numbers. Recruitment, training and placement will be examined, and will be followed by detailed studies at the operating level. The study will be made within the framework of immigrant's economic and cultural absorption with the emphasis on explaining behaviour in terms of "social situation" rather than attitudes.

(b) Brunel University; Professor J. Vaizey, D. Brooks and Miss S. Davies.

(c) 1st August 1965 - 31st July, 1967.

(d) Social Science Research Council.

654 Part-time workers

655 Casual workers

Continuity of employment in the construction industry

(a) A pilot study for a more extensive enquiry with the object of (i) quantifying the extent of and the reasons for casual working in the construction industry and (ii) the effect of casual working on the individual operative and the contractor and the structure and operation of the industry.

(b) London School of Economics; K. E. Thurley.

(c) April, 1966 - July, 1966.

(d) Ministry of Public Building and Works.

TRAINING ADMINISTRATION

70 GENERAL

71 TYPES OF TRAINING

710 General

Related Projects 551(3)

711 Induction and adjustment

712 Basic training

713 Progressive training

714 Refresher training

715 Specific training

Industrial re-training.

(a) The investigation is concerned with the economic and sociological aspects of the re-training of industrial workers with special reference to the Northern Region. The main object of the enquiry has been to relate retraining schemes in the region (in industry and the Government Training Centres) to changing skill requirements. More particularly, the study has been concerned with (i) identifying the best sources of training potential in relation to particular skills; (ii) assessing the effectiveness of retraining schemes; and (iii) examining the barriers to retraining and satisfactory placement. An attempt is also being made to forecast very approximately future manpower requirements in the Region Report expected in 1967.

(b) Durham University, Business Research Unit; H.C. Baker, P.J. Bowden.

(c) 1st September, 1963 - 31st August, 1966.

Related projects 122(2); 124(3); 346

716 Appreciation training

72 LOCATION OF TRAINING; TYPES OF TRAINING CENTRE AND THEIR DESIGN AND LAY-OUT

720 General

721 On-the-job training

722 Training bay or training position

723 Works or company school, centre, workshop; works staff college

724 Industry or Training Board organised centre

725 Government Training Centre

726 Educational establishment

727 Privately run centres

728 Home-based

(1) Survey of home study methods.

(a) An analysis of the results of examinations on boiler and coal preparation operations to assess the potential of home study methods for training older workers compared to other forms of training. The survey has been extended to take in a study of the results of examinations taken by chemical operators in similar circumstances.

(b) London University, University College; Professor G.C. Drew, Dr. E. Belbin, Miss P. Waters.

(c) 1967.

(2) Programmed learning for a HNC course

(a) The object is to devise a Higher National Certificate Course in a technological subject, electrical and electronic engineering, in a form suitable for students unable to attend block-release or day-release courses. An attempt will be made to provide a complete course in programmed form for home study, involving; (i) preparing the programme; (ii) devising the form of the course; and (iii) organising laboratory work and tutorial sessions.

The possibility of providing advanced courses for students who are not able to obtain day-release (normally older students) will be investigated. The project is a feasibility study for using novel methods to meet the needs of the few students who by preference or necessity wish to attend evening classes.

(b) Brunel University; Professor W.D. Furneaux, J.B. Thomas.

(c) April, 1965 - April, 1968.

(d) Department of Education and Science.

73 FORM OF TRAINING ARRANGEMENTS

730 General

731 Wholly in-service

732 In-service with day release

Related projects 733; 900(2)

733 In-service with block release

Comparison of block and part-time day release systems in further education.

(a) To compare the effectiveness of day and block release education with special reference to engineering craft courses. The sample consists of approximately 400 students in each type of course, drawn from at least eight technical colleges. Psychological and educational tests were used to establish basic skills and attainments of the students. The main data for comparison will be examination results and work efficiency assessments. Report in preparation.

(b) National Foundation for Educational Research; Dr. K.M. Miller.

(c) 1962 - 1966

(d) Department of Education and Science.

734 Sandwich arrangements.

Related Projects 900(1)

735 Full-time education course

736 Evening course

737 Correspondence courses

Enquiry into the part played by home study courses in preparing students for degrees

(a) A study in depth is being made of a limited range of correspondence courses leading to a degree or its professional equivalent. A complementary study is being made of a few selected GCE "A" Level courses that qualify successful students to undertake the courses covered by the main enquiry.

(b) Manchester University, Department of Adult Education; Professor E.A.G. Weddell, R. Glatter.

(c) April, 1965 - 1968.

(d) Department of Education and Science.

74 GROUP SCHEMES

75 LENGTH OF TRAINING PERIOD AND ATTENDANCE REQUIRED

76 SETTING INSTRUCTIONAL OBJECTIVES AND DESIGN OF PROGRAMMES AND COURSES.

760 General

(1) To investigate the needs of business students both with regard to teaching methods and to syllabuses.

(a) The project concerns the development of mathematics courses for business students with special reference to the needs of students on CNAA degree courses at the City of London College.

(b) City of London College; L. Stafford.

(c) Session 1966 -1967.

(2) Teaching of engineering in technical colleges

(b) Reading University, Department of Education; Professor C.H. Dobinson, M. Deere.

(c) March 1966 - March 1967

(d) Department of Education and Science

761 Setting instructional objectives

762 Subjects of study

(1) Study of the appropriate content of non-professional courses in accountancy.

(a) To investigate the appropriate content of courses of the level of Ordinary National Certificate or above, which are concerned wholly or partially with the handling of accountancy records, and the preparation and presentation of financial information, and whose aim is not to produce specialist accountants, but to provide an understanding of the principles and practice of accounting and its use in modern business. To consider suitable teaching methods.

(b) Institute of Chartered Accountants; A.H. Walton, A.W. John, R.J. Bull.

(c) 23rd December, 1965 - June, 1967.

(d) Department of Education and Science.

(2) Impact of liberal studies on degree students in science and technology.

(b) Borough Polytechnic, London; Dr. I. C. Cannon, M. Shannon.

(c) 1965 continuing.

Related Projects 624(3) (Mathematics); 831(7) (Mathematics)

763 Syllabus and time-table design

Course content, sequence and teaching methods in schools of architecture.

(a) The first year of the project has been concerned with the total pattern of architectural education and its related educational research; this included the preparation of a register of research projects primarily in architectural education and secondly in related fields that have a bearing on architecture. The next stage is to undertake three specific studies; (i) relative student performance in GCE examinations, selection, the school of architecture and the first year of post-graduate practice and will include a study of "failures"; (ii) a personality inventory of architectural students to be related to student performance and (iii) the levels of learning in an architectural course, i.e. the factual information, intellectual skills and technical skills.

(b) Birmingham School of Architecture, College of Art and Design, S. Sutcliffe.

(c) January 1st, 1966 for three years.

(d) RIBA and College of Art and Design.

764 Session synopsis design

TRAINING METHODS AND
LEARNING AIDS

80 GENERAL

(1) Methods of teaching engineering design

(a) A comprehensive study of how creative design ability is acquired and how and to what extent design can be taught. Engineering companies in Britain, Europe and North America which are considered by the Association to be achieving good design will be visited. Universities and technical colleges which are approaching the problem of design training in an imaginative and progressive way, at home and overseas, will also be included. Results, giving an indication of the nature of the environment in which the ability to produce good engineering design can be most effectively learnt and developed, will be correlated and eventually published. An experimental training course will be developed.

(b) Engineering Employer's West of England Association; M.E. Matchett.

(c) November, 1964 - 1967.

(d) Department of Scientific and Industrial Research.

(2) Teaching methods in higher education.

(a) A study of eight different techniques of teaching at the post-secondary stage with an evaluation of their effects on attitudes. This involves a survey of educational attitudes in ten colleges of education (pre- and post-course) and a study of other groups, as well as an analysis of the forms of communication in a variety of teaching situations.

(b) Cambridge University, Institute of Education; Dr. J. McLeish.

(c) 1967 continuing.

(3) Resources for learning project.

(a) To investigate ways of improving the quality of the learning process in schools. Six stages are envisaged.

(i) The initial stage to collect information from the UK and overseas about innovations in method, particularly programmed learning, team teaching, individual and group working, use of ancillaries, TV and radio, film, learning laboratories and the use of general audio-visual aids; also in organisation; flexible time-tabling, extended school-day and correspondence courses.

(ii) To select a small number of "areas" within the total school system where there appears to be a particular need.

(iii) To apply some form of systems analysis to each "area".

(iv) To find schools, preferably with a member of staff the team can employ, to set up the developments detailed in the third stage for each "area".

(v) To start the development, started in one school in perhaps five others using the materials developed in the first school and

(vi) If time allows, to combine in one school a series of developments which effectively change the whole nature of the school.

(b) Nuffield Foundation; I. MacMullen, L.C. Taylor, J.E. Vaizey.

(c) September 1966 continuing.

(d) Nuffield Foundation.

(4) Training of card-punchers.

(a) A new approach to training card-punchers has been devised and field trials are being started in training establishments.

(b) National Institute of Industrial Psychology; Mr. J.W. Toplis, Mrs. J.A. Chenery.

(c) 1966 - 1968.

Related Projects 555; 646(2); 762(1); 763; 831(15)

81 LEARNING THEORY AND PRINCIPLES.

810 General

Related Projects 360(11)

811 Learning, remembering, retention

(1) Comparison of guidance, with and without knowledge of alternatives, with knowledge of results in a multiple choice learning situation.

(a) Several experiments in the fields of motor skills verbal learning and maze learning indicate that guidance procedures are effective in learning. Further, the more information that is made available in the training situation about the task, the more efficient are guidance techniques. This is an experiment to measure the efficacy of two types of guidance and a knowledge of results procedure, in a multiple choice learning situation. It is predicted that guidance will be superior to knowledge of results and that guidance with alternatives will be superior to guidance.

(b) Bradford University, Management Centre; D.S. Taylor.

(c) 1966 continuing.

(2) Learning of process control skills

(a) The research is concerned with the operator's contribution towards gaining proficiency in a control task. An attempt will be made to extend the concept of a learning strategy to the development of complex skills of this kind, and to examine the relationship between strategy, criteria of success and level of control achieved.

(b) Brunel University; R. Borger.

(c) 1st July, 1961 - 30th June, 1965.

(d) Science Research Council.

(3) Search for optimal conditions of learning intellectually complex subject matter.

(a) Investigation is based on the hypothesis that the intellectual potential of the student population is not fully mobilised in higher education; this is supported by various studies which indicate low or absent correlations between achievement at school and in institutions of higher learning. Questions to which answers are sought, are:-

(i) What individual differences exist in learning behaviour?

(ii) What modification or development of the concept of cognitive controls is required to make it applicable to learning?

(iii) Does such a development produce ways of identifying and describing "learning style"?

(iv) If certain styles are more successful that others, can young adults be enabled to increase their range of "learning style"?

(v) What forms of presenting information, teaching, and course and college organisation are likely to be most suitable for encouraging students to maximise their learning potential?

(b) Brunel University, Department of Psychology and Social Science; Professor M. Jahoda, Dr. L.F. Thomas. (Professor Jahoda is now at Sussex University)

(c) 12th June, 1962 - August, 1967.

(d) Department of Education and Science.

(4) Adult learning problems

(b) Liverpool University; G.H. Jamieson, J.M. Smith.

(d) Medical Research Council.

Related Projects 540(8); 541(3); 625

812 Motivation, incentives, attitudes to learning.

Measurement of Motivation.

(a) High motivation results in high reminiscence scores on pursuit rotor and other learning tasks when these are practised under massed conditions for appreciable periods of time. Various theories are current regarding the cause of this phenomenon, emphasis being given either to inhibition or to consolidation processes. Experimental studies of various learning tasks are projected to determine the precise outline of a theory to account for these and other reminiscence effects.

(b) London University, Institute of Psychiatry
Professor Eysenck, A. Hendrickson, F.H. Farley.

(c) 1st April, 1964 - 31st March, 1967.

(d) Social Science Research Council.

Related Projects 620(14); 557(6)

813 Creativity

814 Individual differences

815 Group processes in learning and thinking; social facilitation of learning.

816 Terminal behaviour, attainment, performance.

(1) Effect of continued learning on performance standards.

(b) Cardiff, Welsh College of Advanced Technology,
Department of Business and Social Studies;
K.F.H. Murrell, F.W. Bevis.

(2) Acquisition of high-speed skills.

(a) This is essentially a laboratory investigation of some of the strategies which the human operator develops to overcome some of his basic limitations, such as reaction time. The research is directed particularly at the "grouping" of separate stimuli into larger units which can be dealt with more efficiently as the skill develops. The task under study is similar to those in card-punching or typing, and detailed analysis of the operator's responses is possible through computer processing of the results. Publication, article in the New Scientist, 5th May, 1966, pages 300-302.

(b) Aston University, Applied Psychology Centre; Professor W. Singleton.

(c) 1st August, 1965 - 31st July, 1967 (at Birmingham).

(d) Social Science Research Council.

(3) Development and laboratory testing of an industrial training device designed to measure speed and accuracy in the performance of operations.

(a) The project involves the workshop development and laboratory testing of a robust form of the device which is based on a piece of apparatus called "the Touch Unit" and is an amplifier controlled relay. This device is based on the use of the human being as an "aerial" for 200 Kc signals. 'Touch pads' are connected to various parts of a manual task. When these are touched by the learner the sequence and speed of his movements are automatically recorded. With this basic equipment it is possible to study such problems as 'knowledge of results' incentives and 'whole or part' learning without the disturbance and distraction of wires attached to the learner. The equipment also cuts out the 'reaction time' of the observer or experimenter who uses traditional stop-watch methods of recording.

(b) Brunel University, Psychology Department; Dr. L.F. Thomas.

(c) 1967

(d) Ministry of Labour.

8.7 Design of instruction including language and communication.

(1) Research on Psycholinguistics with particular reference to the effects of a "negative qualifier" in an instruction.

(b) London, University College; Dr. P.C. Wason, Dr. Sheila Jones.

(d) Medical Research Council.

(2) The communication of information by visual graphs

(b) London, University College; Dr. P.C. Wason, Dr. Sheila Jones.

(d) Medical Research Council.

82 LEARNING PROBLEMS OF PARTICULAR AGE-GROUPS AND CATEGORIES.

83 METHODS OF INSTRUCTION FOR GENERAL APPLICATION.

830 General

Study methods courses and their evaluation.

(a) An attempt to demonstrate that courses in effective study methods can improve students' learning ability (as measured by their class results).

(b) Totley Hall, College of Education; Dr. Michael Bassey.

(c) June, 1965 continuing.

831 Programmed instruction

(1) Applications of programmed learning to training in the gas industry.

(a) To investigate techniques and conditions of use of programmed learning in the gas industry with particular reference to apprentice gas fitters.

(b) Hull University, Department of Psychology; Dr. J. Annett.

(c) 1966 - 1969.

(d) Gas Council and Gas Industry Training Board.

(2) Application of programmed learning techniques to the teaching of laundry technology.

(a) To prepare a series of programmes (probably up to 36) dealing with special aspects of chemistry, physics, textiles and engineering as taught through the three months full-time course in laundry technology. As the work proceeds and verification is obtained that the use of programmed learning is contributing to a higher standard of education, further projects will be started to evaluate the use of this method for other courses run by the Association. The ultimate aim is to make much of this information available for on-site training of staff within the members' own plants.

(b) British Launderers' Research Association.

(c) 1966 - 1968.

(3) Programmed learning and elementary statistics.

(a) To write and evaluate an elementary statistics programme for use by business students at the City of London College.

(b) City of London College; L. Stafford.

(c) 1966 - 1967.

(4) Application of programmed learning techniques to the teaching of the Engineering Procedure Agreement.

(a) The aim is to programme the Procedure Agreement using the experience gained in the teaching of it by existing methods and to experiment in using such a programme in book and teaching machine form. Publication A.I. Marsh, "Teaching Industrial Relations in Engineering", Pergamon Press, June 1966.

(b) Oxford University, St. Edmund Hall; M.I. Marsh.

(c) 1st January, 1964 - 31st December, 1967.

(d) Social Science Research Council.

(5) Programmed learning and management training.

(a) The evaluation of the programme "effective executive practices" as a medium for carrying out certain aspects of a management training course.

(b) Ashridge Management College and Birkbeck College, London; Miss A.G. Pincer-Smith.

(c) 1965.

(6) Application of programmed instruction to the training of cost and works accountants by the Army Department.

(a) The development of programmed material to cover some parts of the costing syllabus of correspondence courses on cost and works accountancy operated by the Army Department. The aim is to study the effectiveness of methods used in programmed instruction techniques and to formulate some principles for the guidance of those responsible for these correspondence courses.

(b) London University, Birkbeck College; Professor A. Rodger, P.W. Cavanagh.

(c) December, 1965 - November, 1969.

(d) Ministry of Defence (Army Department).

(7) Use of programmed material in the teaching of mathematics for engineers in technical colleges.

(a) A number of topics have been programmed to constitute three series of programmes designed for use with National Certificate, General Course and Technician Course students in engineering. These have been validated and are being used in normal teaching situations in a number of technical colleges in the NW and NE. The objective is to obtain criteria for the selection of types of topic to be programmed and the appropriate programme format including, in particular, the personality factors involved.

(b) Bolton College of Education; D.R. Griffiths, B. Wilcox.

(c) September, 1963 - 1967.

(8) Auto-instructional methods in industry.

(a) (i) The use of teaching machines and programmed instruction. The prototype of a general purpose machine which has a facility for several different kinds of programme has been constructed. An adaptive machine for the training of manual responses has also been constructed and experiments are being carried out with it.

Experimental teaching programmes are being written for a variety of technical subjects, and particularly for the engineering industry. These programmes have been evaluated within industry, and are now being published.

(ii) Retrieval of information. Studies are being carried out on the retrieval of verbal information from the memory store and the characteristics of the human operator as a speech generator. The model for language being used is that of a skill controlled by feed-back, rather than more conventional "grammars" or conditioning models.

(b) Sheffield University; Professor H. Kay, M.E. Sime, B. Dodd.

(c) 1st October, 1963 - 31st July, 1970.

(d) Social Science Research Council.

(9) Study of the use of teaching machines and programmed learning for training industrial operatives.

(a) There is a clear need for the investigation of the more economical use of programmed learning in industrial training situations. This research, to be conducted with the collaboration of a large industrial organisation, is concerned with the application of programmed learning to the training of industrial operatives at an economically practical level.

Experimental programmes are being written and tried out to train operatives on a short cycle assembly job which normally involves a long training period. The programme is to be presented on film using a branching-type machine or a modified version of it.

(b) Enfield College of Technology; J.W. Hamer, A. Romiswoski.

(c) 1st September, 1964 - 31st August, 1967.

(d) Social Science Research Council.

(10) Comparison of methods of presenting programmed material on machine tool instruction for apprentices and junior trainees.

(a) Does taped instruction offer any advantage in terms of effectiveness, time and cost over written programmed instruction? What is the attitude of trainees to programmed instruction in both written and taped form, on practical work and compared to attitudes towards conventional instruction?

(b) Glacier Metal Company and Pressed Steel Company Limited.

(c) 1966 - 1967.

(d) Engineering Industry Training Board.

(11) Experiments in programmed learning.

(a) The Halton and St. Athan experiments were designed to compare the effectiveness of different editions of the same basic programme, using carefully matched groups. Four editions of the material consisting of a mathematics programme entitled "the principles of automatic car transmission systems" were prepared. Group 1 used the full programme, Group 4 used a special edition consisting of only the main teaching sequences, group 2 used an edition consisting of the main teaching pages (demonstration exercises) and prompting frames, whilst Group 3 used an edition consisting of the main teaching pages and criterion or key frames (release frames).

At RAF Halton there was no statistically significant difference between the test scores in Groups 1, 2, 3 or 4. Thus the varying editions of the programme used by the students had no discernible consequences in terms of achievement and retention, nor in terms of attitude.

At St. Athan a rather less able population was used. The statistical analysis is not yet complete, but it has already confirmed that there are no significant differences between the four groups as far as achievement is concerned.

(b) Ministry of Defence (Air); Sqdn Ldr I.K. Davis.

(c) 1964 - 1967.

(12) Military value of programmed instruction.

(a) Problems of programming military subject matter; the evaluation of commercially available programmes and devices, and comparison of different programming styles.

(b) Ministry of Defence (Army Personnel Research Establishment); K.D. Duncan.

(c) September, 1963 - September, 1966.

(13) Programmed learning on operational units.

(a) A course on transistor theory has been programmed, the first half in both teaching machine and scrambled book format, the second in book format only. It is being read by tradesmen on operational units in place of attendance at a training school.

The study is designed to throw light on; (i) relative cost-effectiveness of conventional and programmed instruction; (ii) relative cost-effectiveness of machine and book presentation; (iii) problems arising from the use of programmed learning in continuation training.

Preliminary results indicate that the programmed method teaches effectively and there is little difference between the marks achieved from the machine and book groups, that better results are achieved with some control over student progress than without supervision, and that this method of instruction is liked by most personnel.

(b) Ministry of Defence (Air).

(c) 1965 - 1967.

(14) Research into varying types of programmed texts.

(b) Birmingham University, Department of Education; Professor E.A. Peel.

(c) March 1963 - 1967.

(d) Department of Education and Science.

(15) Technologies of instruction (with special reference to the programmed instruction).

(a) To develop a new range of training technologies. Diagnostic and craft skills involved in electrical and electronic maintenance will receive special emphasis. Improved techniques for instruction will be modelled on the paradigm of programmed instruction. To improve RN training, especially in the maintenance field, and to enable lower-quality staff to attain the best possible level of efficiency.

(b) Ministry of Defence (Navy), Naval Training Research Unit; Dr. N.A.B. Wilson, D. Wallis.

(c) 1966 continuing.

Related Projects 621(1); 652; 728(2); 884(1)

832 Taped instruction

Related Projects 831(10);

833 TWI job instruction

834 Practical demonstration

835 Project work

84 INDIVIDUAL METHODS OF INSTRUCTION

85 GROUP METHODS OF INSTRUCTION

850 General

851 Lecture

852 Lesson

853 Discussion

(1) An enquiry into the uses of group discussion methods in university departments of science.

(a) A questionnaire is being used to enquire into the aims of the method, on how it fits in with the course as a whole, the time spent in discussion, the aids used, the preliminary work by students or any follow-up, the methods of assessment and the advantages and disadvantages of the method. The questionnaire has been circulated to approximately 800 lecturers.

(b) University of London, Institute of Education; Dr. R.M. Beard, Miss I.E. Bull.

(c) 1966 - 1967.

(d) The Leverhulme Trust.

(2) Group study project.

(a) To attempt an evaluation of the use of informal group discussion within the variety of learning situations existing at the Polytechnic. To examine the variations in structure (size, membership, character, task of group) and management (the amount and kind of direction required), of small discussion groups that are indicated by the educational contexts, with a view to clarifying how, when and why group discussion can be used successfully in further education.

(b) North-Western Polytechnic (Further Education), London; Mrs. C. Nicholson.

(c) 1966 - 1968.

854 Expert witness

855 Case study in-tray exercises, business games.

(1) Design and application of computerised management games

(a) To design computerised business simulations as an educational tool to assist in the training of students. These simulations emphasise certain features, such as the integrated nature of industrial activities, which would otherwise be difficult to demonstrate by other means. They provide the student with the opportunity of making decisions and then seeing the effects of those decisions.

(b) Brighton College of Technology; D.A. Savage.

(c) 1964 continuing.

(2) Management case studies from United Kingdon sources.

(a) The preparation of 50 or more studies of management problems or management situations observed in industrial firms and other establishments to provide a wider range of material for courses in management.

(b) Cranfield, College of Aeronautics; Professor J. Loxham.

(c) October, 1964 - June, 1967.

(d) Department of Education and Science.

856 Role play, including role reversal.

857 Syndicate work.

858 Sensitivity training (T-Groups).

Study of the T-Group method of training in human relations for managers and students.

(a) Assessment of changes resulting from T-Group training are made through questionnaire responses, analyses of tape recordings and follow-up studies. The amount and quality of change is related to variables within the training situation, such as the behaviour of the staff trainer, the informal role structure of the training group and the climate of the group; and to variables antecedent to training such as participant personality and conditions under which an organisation nominates a man for training. The theoretical model underlying the research relates training effectiveness to the degree to which participants identify with salient figures in training and internalise their learning.

(b) Sussex University; Dr. P.B. Smith

(c) 1965 - 1968.

(d) Social Science Research Council.

86 VISUAL LEARNING AIDS AND EQUIPMENT

860 General, including libraries

The design of class apparatus, to aid the teaching of elementary electronics.

(a) To design effective apparatus that can be easily constructed. Each unit to be "fool-proofed" using a series of protecting rectifiers.

(b) Paddington Technical College; D.T. Simmonds.

(c) February, 1966 continuing.

861 Chalk and display boards

862 Drawings, charts, diagrams

863 Slides, silent film strip, silent films and projectors.

864 Teaching machines

Related Projects 831(8); 831(9)

865 Manuals, notes and hand-outs

866 Fixed models

87 AUDIO LEARNING AIDS AND EQUIPMENT

88 AUDIO-VISUAL LEARNING AIDS AND EQUIPMENT.

880 General

Related Projects 800(3)

881 Sound film and film strip and projectors

882 Closed loop films and projection devices.

883 Broadcast television

(1) Research on the impact of television broadcasts on engineering courses in technical and further education colleges.

(a) A control experiment to compare students who have seen TV broadcasts in engineering science with students who have not seen them, in respect of attainment and attitudes to the course. One pilot experiment and two main experiments have been carried out. In the main experiment, complete sets of data were available from 860 students in 27 colleges of whom somewhat less than half have seen the broadcast. The remainder provided an equivalent control group. For each student, seven independent scores were available, i.e. scores in mechanics, heat and electricity, two scores for attitude, and scores in verbal and non-verbal intelligence. Article in Vocational Aspect, No. 37, Summer, 1965.

(b) Garnett College; Dr. I. MacFarlane Smith.

(c) June, 1963 - 1967.

(2) Appraisal of an experimental television course for adults.

(a) A study of the progress of students following an experimental adult education course in elementary economics broadcast in the autumn of 1964 by Associated Television and combined with a correspondence course, meetings with tutors and a short residential course.

(b) Nottingham University, Department of Adult Education; Professor H.C. Wiltshire.

(c) 1965 - 1966.

(d) Department of Education and Science.

(3) Assessment of educational television

(b) Leeds University, Department of Education; Professor W. Walsh.

(c) 1963 - 1968.

(d) Department of Education and Science

884 Closed-circuit television

(1) Development of systems of educational technology.

(a) To develop various media, CCTV, programmed learning, etc. to discover in what areas each is most relevant and effective and evolve a complete systems approach to teach, initially, in those areas where, currently, problems arise. Eventually, the development of a CAI (computer assisted instruction) system is envisaged.

(b) Brighton College of Technology; I.R. Keith.

(c) 1964 continuing.

(2) Investigation into the use of closed circuit television in teacher training.

(a) To ascertain what contribution closed circuit television can make in various aspects of teacher training. Controlled experiments will involve a comparison of:-(i) students viewing lessons directly and (ii) students viewing lessons on single and double channel close circuit television.

(b) Dundee College of Education; D.E. Stimpson.

(c) September, 1964 continuing.

(d) Scottish Education Department.

Related Projects 883(3)

885 Video tape

89 MULTI-SENSORY LEARNING AIDS AND EQUIPMENT

890 General

Related Projects 816(3).

891 Working models.

892 Simulators, synthetic trainers.

Related Projects 646(1)

893 Workshop equipment and tools

Related Projects 860

894 Computers

Related Projects 855(1); 884(1)

ASSESSMENT OF TRAINING EFFECTIVENESS

90 GENERAL

(1) Effectiveness of different types of technological course

(a) The main work consists of a comparative study of three parallel courses for metallurgy students (London Internal Degree and two Dip. Tech. sandwich courses) who started their studies at Battersea College of Technology (now the University of Surrey) in 1962/1963. This is supplemented by data obtained from college records of past students and from questionnaires given to the complete college intake. The project is: (i) to ascertain whether the sandwich type honours degree level course is a more appropriate method of training technologists in the long run (e.g. ten years after commencement of courses), (ii) to study the importance of effectiveness of choice of course and level of interest on student performance and (iii) to comment on course content, teaching methods, etc.

(b) Surrey University; Dr. M. P. Hornsby-Smith.

(c) October, 1966 continuing. Follow-up studies to approximately 1972.

(2) Technical training of day-release engineering apprentices, the relevance of courses of instruction to the needs of industry.

(a) The objective was to survey critically the technical training of part-time day-release engineering apprentices and to assess the effectiveness of the factors involved. Training in industry as well as in the colleges of further education was considered and special consideration was given to the contribution of small firms.

(b) London University, Birkbeck College; J. V. Hamer.

(c) Not known.

(3) **Study of nurses' training**

(a) To follow through entrants to three nurses training schools, to study background and attitudes to nursing, to relate experience and education to examination results and to compare training schemes where practicable.

(b) Manchester University, Institute of Science and Technology; Dr. Revans.

(c) 1964-1966.

(d) Ministry of Health.

Related Projects 261(2); 360(12); 540(3); 551(9); 552(2); 552(3); 552(4); 620(14); 715; 830; 831(11); 883(1).

91 TRAINING RECORDS

910 General principles and design

Design of training records

(a) The purpose of the project is to develop improved forms of training record. A survey will be made of firms' needs and present records, leading to a recommendation and trial of improved standard methods. The project will benefit from the Institute's experience in related fields.

(b) National Institute of Industrial Psychology; Dr. R. B. Buzzard.

(c) October, 1966-September, 1969.

(d) Ministry of Labour.

911 Instructors' records

912 Trainees' records

92 METHODS OF ASSESSMENT

920 General including appraisal systems

Possible objective criteria for assessing management potential and performance

(a) An attempt to collect objective observations of managerial behaviour in the hope of relating these to some criteria of good or bad performance in this area, using initially the "critical incident technique". This is a procedure which aims to establish the critical requirements of the job or activity through direct observation by participants in, or supervisors of, a job or activity.

(b) Manchester University, Institute of Science and Technology; C. J. Cox.

(c) 1966-1969.

Related Projects 620(9)

921 Continuous assessment systems

922 Terminal assessment systems

93 METHODS OF VALIDATION

930 General

(1) Causes of failure in diploma of technology courses in engineering

(a) The academic progress of 174 students entering the above courses in one college in the four years 1956-1959 was studied and criteria were established by which it was possible to determine from the results of sessional examinations the likelihood of ultimate success or failure. It became evident that due to differing rates of assimilation, some students required five years to attain a required standard. Ultimate success depended on each of these students being committed to repeat the "correct" year of the course. The criterion referred to in the report enabled the "correct" year to be predicted. Further work on this project is continuing.

(b) Woolwich Polytechnic; J. R. Haslam.

(c) 1957-1964.

(2) Research on examinations

(a) Fields of investigation are the form and validity of examinations and the effect of examinations on the curriculum. Data available from other enquiries in

Scotland is being collected and collated before deciding the particular investigation to be undertaken.

(b) Scottish Council for Research in Education.

(c) 1965 continuing.

(3) Use of objective tests in a university department of engineering

(a) Trial objective tests of engineering ability and experimental use during the first year at the university will be prepared. The sample consists of a one year entry of students in the Department of Engineering, University College of Swansea, i.e. about eighty after discards through sickness, etc.

(b) Swansea University College; R. R. Dale.

(c) June, 1962 - June, 1966.

(4) A study of methods of examining other than by written papers

(b) Leicester University, School of Education; Dr. J. F. Kerr.

(c) December, 1963 - December, 1966.

(d) Department of Education and Science.

(5) A survey of tests and other methods of ascertaining attainment

(a) There is no convenient compendium of information on tests and other methods in current use in this country and elsewhere. Nor is there any clear exposition of the principles involved in them, or of the merits or defects of various common practices. A survey will be carried out, not only by searching the literature but also by discussion, observation and correspondence. The aim is to provide a useful guide for Training Boards, employers, unions and instructors.

(b) London University, Birkbeck College; Professor A. Rodger.

(c) 1967-1969.

(d) Ministry of Labour.

931 Practical tests

932 Written tests

933 Oral tests

934 Observation and interview

935 Subjective reports by the training specialist

936 Subjective reports by manager/supervisor

937 External validation, post-training assessment of measures of operational efficiency

94 USE OF COMPETITIONS

95 EVALUATION

950 General

(1) Rate of return on investment in education in Great Britain

(a) To provide criteria for educational expenditures and to illuminate decision making in the public sector. he enquiry concerns the measurement of both the private and social rate of return, that is, the ratio of the benefits of education in the form of extra life-tim earnings, before and after tax to the private cost f education. A preliminary calculation for 1963 has een completed. A survey to obtain better data is now bing prepared.

(b) London University, Institute of Education; Dr. M. Baug, D. Henderson-Stewart.

(c) September, 1964-1967.

(d) The Ford Foundation.

(2) Validation of supervisory and management training

(a) Indices of the behaviour of foremen and managers will be developed and these will be used to establish criterion behaviours for training courses. This is a necessary first step before attempts to evaluate the courses, can be made. Experiments will be conducted on the effectiveness of different types of training, and techniques will be developed whereby self-correcting training systems can be created. Other factors which might influence the outcome of training (ambition, experience and "leadership climate" for example) will be studied.

(b) Sheffield University; Dr. P. B. Warr.

(c) 1st September, 1966-1969.

(d) Ministry of Labour.

951 Training costs

(1) Study of the cost functions of new firms with special reference to the economic consequences of "learning by doing"

(b) Essex University; P. T. Geary

(2) Costs and benefits of industrial training

(a) The main object of the work is to explore the problems involved in the development of criteria for the payment of grants by the Industrial Training Boards.

(b) Belfast, Queen's University; W. Black.

(d) Northern Ireland Training Council.

952 Training cost-analysis systems

953 Cost-effectiveness measurement

(1) Study of the use of costing and other financial techniques in technical colleges

(a) An examination of the extent to which, and the methods by which, the use of costing and other financial techniques are at present applied to technical colleges for the purpose of helping local education authorities and governing bodies determine the most effective and economic use of the available resources.

(b) Birmingham University, Institute of Local Government Studies; H. Maddick, M. F. Stonefrost.

(c) 4th August, 1964 - August, 1966.

(2) Measurement of productivity trends in primary and secondary education

(a) The study will apply to primary and secondary education the methodology used in a recent study of productivity in higher education. Output is to be measured in terms of the school leaver with various "weighting" systems. The "economic" weights will use data on the life-time earnings of people with different terminal education ages. The "academic" weights will be based on the academic achievement of school leavers.

(b) London University, Institute of Education; Dr. M. Blaug.

(c) 17th June, 1966-September, 1968.

(d) Department of Education and Science.

(3) Cost-benefit analysis of industrial training

(b) London University, Queen Mary College; A. Ziderman.

Related Projects 831(13)

APPENDIX 1

ADDRESSES OF INDUSTRIAL TRAINING BOARDS

Agricultural, Horticultural and
Forestry Industries Training Board,
Bourne House,
34 Beckenham Road,
Beckenham.

Carpet Industry Training Board,
Evelyn House,
32 Alderly Road,
Wilmslow,
Cheshire.

Ceramics, Glass and Mineral Products
Industries Training Board,
1st Floor, Bovis House,
Northolt Road,
Harrow,
Middlesex.

Construction Industry Training Board,
Radnor House,
London Road,
Norbury,
London, S.W.16.

Cotton and Allied Textiles Industry
Training Board,
10th Floor, Sunlight House,
Quay Street,
Manchester, 3.

Electricity Industry Training Board,
30 Millbank,
London, S.W.1.

Engineering Industry Training Board,
St Martin's House,
140 Tottenham Court Road,
London, W.1.

Furniture and Timber Industries
Training Board,
York House,
Empire Way,
Wembley, Middlesex.

Gas Industry Training Board,
17 Grosvenor Crescent,
London, S.W.1.

Hotel and Catering Industry Training
Board,
9 Gloucester Gate,
London, N.W.1.

Iron and Steel Industry Training
Board,
4 Little Essex Street,
London, W.C.2.

Knitting, Lace and Net Industries
Training Board,
Government Buildings, Block 7,
Spur G, Chalfont Drive,
Nottingham.

Man-made Fibres Producing Industry
Training Board,
8th Floor, 68 Knightsbridge,
London, S.W.1.

Road Transport Industry Training
Board,
Capitol House, Empire Way,
Wembley, Middlesex.

Shipbuilding Industry Training Board,
Raebarn House, Northolt Road,
South Harrow, Middlesex.

Water Industry Training Board,
104A Park Street,
London, W.1.

Wool, Jute and Flax Industries
Training Board,
55 Well Street,
Bradford, 1.

Note: Communications should normally be addressed to the Secretary, except for the Iron and Steel ITB where they should be addressed to the Director.

APPENDIX 2

ADDRESSES OF RESEARCH ORGANISATIONS WITH THE CLASSIFICATION NO. OF THEIR PROJECTS

Ashridge Management College,
Research Department,
Berkhamstead,
Herts.

242(3); 331(1); 350(4); 360(5); 360(12); 552(1); 831(5)

Association of Commonwealth Universities,
36 Gordon Square,
London, W.C.1.

620(8)

Aston University in Birmingham,
Gosta Green,
Birmingham, 4.

242(4); 261(1); 261(2); 331(5); 350(1); 816(2)

Bangor, University College of North Wales,
Bangor,
Caernarvonshire.

540(6); 621(2)

Bath University of Technology,
Claverton Down,
Bath,
Somerset.

122(1); 552(2); 557(2)

Belfast: Queen's University,
Belfast,
Northern Ireland.

354(1); 541(3); 624(5); 624(6); 951(2)

Birmingham College of Art and Design, School of Architecture,
Gosta Green,
Birmingham, 4.

763

Birmingham University,
The University,
Birmingham, 15.

230(3); 331(2); 331(7); 354(2); 540(1); 540(5); 624(2); 624(7); 831(14);
953(1)

Bolton College of Education (Technical),
Chadwick Street,
Bolton,
Lancashire.

831(7)

Borough Polytechnic,
Borough Road,
London, S.E.1.

762(2)

Bradford University,
Emm Lane,
Bradford, 9.

520(1); 811(1)

Brighton College of Technology,
Moulsecoomb,
Brighton, 7,
Sussex.

346; 855(1); 884(1)

Bristol University,
The University,
Senate House,
Bristol, 2.

534(1); 551(4)

British Iron and Steel Research Association (BISRA),
24 Buckingham Gate,
London, S.W.1.

121(3)

British Launderer's Research Association,
The Laboratories,
Hill View Gardens,
Hendon,
London, N.W.4.

831(2)

Brixton School of Building,
55-57 Barrington Road,
Brixton,
London, S.W.9.

551(7); 623(1)

Brunel University,
Woodlands Avenue,
Acton,
London, W.3.

653; 728(2); 811(2); 811(3); 816(3)

Cambridge University,
University Registry,
The Old Schools,
Cambridge.

124(1); 124(2); 360(1); 613(1); 652; 800(2)

Cardiff: University College of South Wales and Monmouthshire,
Cathays Park,
Cardiff,
Glamorgan.

331(3); 331(6); 380(1); 500(3); 520(2)

Cardiff: Welsh College of Advanced Technology,
Cathays Park,
Cardiff,
Glamorgan.

123(1); 540(8); 557(1); 557(5); 816

City and Guilds of London Institute,
76 Portland Place,
London, W.1.

411

City of London College,
Moorgate,
London, E.C.2.

760; 831(3)

Council of Engineering Institutions,
2 Little Smith Street,
London, S.W.1.

553

Coventry: Lanchester College of Technology,
Priory Street,
Coventry.

230(2); 380(2)

Cranfield: College of Aeronautics,
Cranfield,
Bedfordshire.

855(2)

Dundee College of Education,
Park Place,
Dundee.

884(2)

Durham University,
Business Research Unit,
29 Old Elvet,
Durham.

715

Ealing Technical College,
St Mary's Road,
Ealing,
London, W.5.

311(1)

Edinburgh University,
The University,
Edinburgh.

242(1); 245(2); 300; 360(2); 360(4); 360(7); 620(2); 620(5); 620(6);
621(3)

Enfield College of Technology,
Queensway,
Enfield,
Middlesex.

831(9)

Engineering Employers West of England Association,
Department of Work Study and Staff Training,
Engineer's House,
The Promenade,
Clifton Down,
Bristol, 8.

800(1)

Essex University,
Wivenhoe Park,
Colchester,
Essex.

241(2); 851(1)

Garnett College,
Downshire House,
Roehampton Lane,
London, S.W.15.

620(1); 624(3); 883(1)

Glacier Metal Co, (and Pressed Steel Co),
Ealing Road,
Wembley,
Middlesex.

831(10)

Glasgow University,
Glasgow, W.2.

330(1)

Hatfield College of Technology,
Hatfield,
Herts.

551(2)

Henley: The Administrative Staff College,
Greenlands,
Henley-on-Thames,
Oxon.

551(5)

Heriot-Watt University,
Marshall Street,
Edinburgh, 8.

540(7)

Hull University,
Cottingham Road,
Hull.

121(5); 530(2); 831(1)

Institute of Chartered Accountants,
City House,
56 Goswell Road,
London, E.C.1.

762(1)

Kent University at Canterbury,
Westgate House,
Canterbury,
Kent.

121(1)

Kingsway College of Further Education,
Sidmouth Street,
Grays Inn Road,
London, W.C.1.

556

Leeds University,
Leeds, 2.

242(5); 883(3)

Leicester Regional College of Technology,
The Newarke,
Leicester.

124(3)

Leicester University,
University Road,
Leicester.

245(3); 930(4)

Liverpool University,
Liverpool, 3.

110; 646(3); 811(4)

London University: Birkbeck College,
Malet Street,
London, W.C.1.

230(1); 413; 536; 620(4); 831(6); 900(2); 930(5)

London University: Chelsea College of Science and Technology,
Manresa Road,
London, S.W.3.

620(10)

London University: Imperial College of Science and Technology,
Prince Consort Road,
London, S.W.7.

620(9)

London University: Institute of Education,
Malet Street,
London, W.C.2.

853(1); 950; 953(2)

London University: Institute of Psychiatry,
Maudsley Hospital,
Denmark Hill,
London, S.E.5.

625; 812

London University: Queen Mary College,
Mile End Road,
London, E.1.

953(3)

London University: School of Economics,
Houghton Street,
London, W.C.2.

120(2); 120(3); 120(2); 200; 222(2); 245(1); 554(2); 644; 655

London University: University College,
Gower Street,
London, W.C.1.

500(4); 624(4); 641; 646(1); 646(2); 728(1); 817(1); 817(2)

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Industrial Retraining.

Loughborough Technical College,
Radmoor,
Loughborough,
Leicestershire.

620(12)

Loughborough University,
Loughborough,
Leicestershire.

540(4)

Luton College of Technology,
Park Street,
Luton,
Beds.

557(3)

Manchester University,
Oxford Road,
Manchester, 13.

141(4); 242(7); 331(4); 351(1); 360(10); 551(6); 552(4); 737; 910(3); 920

Ministry of Defence (Air),
Technical Training Command,
RAF Brampton,
Huntingdon.

620(7); 620(14); 831(11); 831(13)

Ministry of Defence; Army Personnel Research Establishment,
c/o RAE,
Farnborough,
Hampshire.

620(3); 621(1); 831(12)

Ministry of Defence (Navy),
Naval Training Research Unit,
Empress State Building,
Lillie Road,
London, S.W.6.

831(15)

Ministry of Technology,
Building Research Station,
Bucknall's Lane,
Garston,
Watford,
Hertfordshire.

555; 557(4); 557(6)

National Examinations' Board in Supervisory Studies,
76 Portland Place,
London, W.1.

552(3)

National Foundation for Educational Research,
The Mere,
Upton Park,
Slough,
Bucks.

241(1); 242(2); 733

National Institute of Adult Education,
33 Queen Anne Street,
London, W.1.

270

National Institute of Industrial Psychology (NIIP),
14 Welbeck Street,
London, W.1.

351(2); 500(2); 512; 523(1); 540(3); 613(2); 620(11); 620(13); 624(1);
800(4); 910

Newcastle-upon-Tyne University,
St Thomas' Street,
Newcastle-upon-Tyne, 1.

554(1); 557(4)

Newport and Monmouthshire College of Technology,
Allt-yr-yn Avenue,
Newport,
Monmouthshire.

122(2)

North-Western Polytechnic,
125-133 High Street,
Camden Town,
London, N.W.1.

853(2)

Nottingham University,
University Park,
Nottingham.

141(1); 541(2); 883(2)

Nuffield Foundation,
Tavistock House South,
Tavistock Square,
London, W.C.1.

800(3)

Organisation for Economic Co-operation and Development,
Manpower and Social Affairs Committee

121(4)

Oxford University,
1 South Parks Road,
Oxford.

545

Oxford University,
St Edmund Hall,
Oxford.

831(4)

Oxford University,
Somerville College,
Oxford.

260

Paddington Technical College,
Beethoven Street,
London, W.10.

860

Perkins Manufacturing Co,
Employee Resourcing Department,
Peterborough.

534(2)

Polytechnic,
Regent Street,
London, W.1.

551(1)

Reading University,
The University,
Reading,
Berks.

541(1); 551(8); 760(2)

Retail Trades Education Council,
56 Russell Square,
London, W.C.1.

311(2)

Robert Gordons Technical College,
Aberdeen.

141(3)

Roffey Park Institute,
Horsham,
Sussex.

623(2)

Salford: Royal College of Advanced Technology,
Salford, 5,
Lancs.

124(4); 360(3); 360(6)

Scottish Council for Research in Education,
46 Moray Place,
Edinburgh, 3.

930(2)

Seafarers Education Service,
207 Balham High Road,
London, S.W.17.

311(4)

University of Sheffield,
The University,
Sheffield, 10.

242(6); 504(1); 831(6); 950(2)

Southampton University,
The University,
Southampton.

120(1)

Staffordshire College of Technology,
Beaconside,
Stafford.

523(2)

St Andrews University,
College Gate,
St Andrews,
Dundee.

540(2)

Strathclyde University,
George Street,
Glasgow, C.1.

123(2); 125; 141(2); 220(1); 311(3); 342; 350(2); 351(3); 360(8);
360(9); 561

Surrey University,
London, S.W.11.

610; 623(3); 900(1)

Sussex University,
Falmer,
Brighton,
Sussex.

858

Swansea University College,
Singleton Park,
Swansea.

930(3)

Tavistock Institute of Human Relations,
3 Devonshire Street,
London, W.1.

242(8); 330(2); 350(3); 350(5); 500(5); 511; 551(9)

Totley Hall College of Education,
Totley,
Sheffield,
Yorkshire.

830

Woolwich Polytechnic,
Wellington Street,
London, S.E.18.

930(1)

York University,
Heslington,
York.

360(11); 500(6); 551(3)

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